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TRANSLATED FROM THE FRENCH

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B A U D E L O C Q U E

B Y

J O H N H E A T H,

SURGEON IN THE ROYAL NAVY, AND MEMBER OF THE
CORPORATION OF SURGEONS OF LONDON.

IN THREE VOLUMES.

VOL. II.

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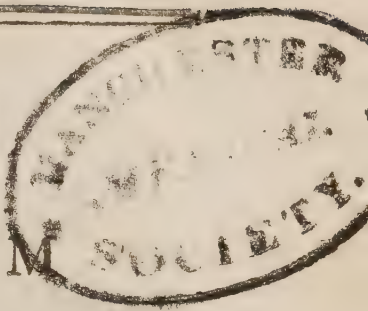
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P A R T II.

C H A P. V.

Of delivering the After-birth, and the Regimen to be observed in the Month.

898. **D**ELIVERING the *after-birth*, and the regimen to be observed by lying-in women, form two articles not less essential than the preceding: the least fault in one, or the smallest inexactitude in the other, may equally become the source of a crowd of ills and disagreeable accidents.

A R T I C L E I.

Of Deliverance.

899. By the word *deliverance* has long been understood the exit of the *placenta*, and the membranes. It would almost always be the work of nature, if we were to give her time to perform it; and it must be confessed that in most cases we contribute very little to it, though the people imagine the contrary, and regard our ministry in this article as the sheet anchor of the woman.

900. The powers of nature are however limited; and in delivering the *after-birth*, as well as the child, art is sometimes absolutely necessary.

901. Two very opposite opinions have been built on these fundamental truths. Some have pretended that we ought always to commit the expulsion of the *placenta* to nature; and others, that we cannot extract it too speedily: the latter scarcely gave themselves time to tie and cut the cord, before they introduced the hand into the *uterus* to finish the delivery; while the former patiently waited the expulsion of the
after-

after-birth, though in some cases nature alone could not perform it.

902. These precepts, too general on both sides, have often been fatal to the woman. There are cases, without doubt, and I shall distinguish them carefully, where the accoucheur is obliged to deliver the *placenta* instantly; and others where circumstances require that he should abandon it almost entirely to nature: but, in all, he may co-operate usefully, by seizing the favourable moment for it.

903. Before we demonstrate that moment, and explain the manner of executing it, whether in the usual circumstances, or in extraordinary, let us see how nature performs it when left entirely to herself.

S E C T I O N I.

Of the unassisted Delivery of the Placenta.

904. THE deliverance which is performed without help comprehends two periods, that of the detachment of the *placenta*, and that of its expulsion. The *uterus* is the principal agent

4 DELIVERY OF THE AFTER-BIRTH.

of this double operation ; its action alone forces the *placenta* to detach itself ; but standing in need of help to disencumber itself entirely of it, the contraction of the abdominal muscles comes to its assistance.

905. The repeated efforts of the *uterus* to expel the *fœtus*, usually destroy the adhesions of the *placenta*, since we almost always find it at the orifice, immediately after the exit of the child. Sometimes this separation begins at the center of the *placenta*, and sometimes at some point of its circumference ; which produces different phenomena.

906. In the former case, the middle of the *placenta* being pushed forward, it forms a bag behind, which fills with blood ; and it presents that side to the touch which is covered with the membranes and vessels.

907. The *placenta* forms nearly a similar bag, and presents in the same manner, when it begins to separate from the *uterus* at that part of its edge which is farthest from the orifice. But things go on very differently when the separation begins at its lower part, especially if it be in the neighbourhood of the orifice. In this latter case, the *placenta* rolls itself up in form of a cylinder, and according to the length of the
uterus,

uterus, so as to present its anfractuous surface to the touch; and its exit is always preceded by a little fluid blood.

908. As the orifice of the *uterus* generally closes, as soon as the child has passed it, the *placenta* is shut up for a few minutes: but that *viscus*, still very much irritated, not being able to bear this now foreign body, presently contracts to expel it, and forces its orifice to re-open to give it a passage; the woman also, stimulated by the uneasiness caused by the *placenta* engaged in the *vagina*, soon makes some efforts to accelerate her *deliverance*.

909. The *placenta* always brings the membranes away with it, unless their union with the *uterus* be very strict. In that case they tear, and the portion retained does not separate till some time afterwards, when it comes away with the lochia: but the *uterus* does not always support its presence till that time, without accidents.

910. Nature always follows this course in delivering the *placenta*, but not always with an equal pace; some women expelling it very quickly, and others very slowly. The delivery of the *placenta* is in general so much the quicker, as the expulsion of the child has been

flower, as the *uterus* is more irritable, and as it preserves more force and less capacity immediately after the delivery of the child; and *vice versa*.

S E C T I O N II.

Of the Signs which indicate the Time when we ought to co-operate in delivering the Placenta, and the Method of doing it in the most usual Cases.

911. WE ought never, in the natural order, to attempt delivering the *placenta*, till it be detached, and the *uterus* endeavours to expel it. A return of the pains announces that instant; the hardness and small size of the uterine globe, which may be felt above the *os pubis*, the softness of the edge of its orifice, the dilatation of it, and the presence of a body which begins to engage in the *vagina*, confirm it.

912. We favour the *deliverance*, by suffering the *placenta* to empty itself by the umbilical vein; by frictions on the *hypogastric* region, to excite

excite or maintain the action of the *uterus* ; and by pulling the umbilical cord.

913. When we pull the cord, in order to bring away the *placenta*, we ought to direct our forces in such a manner, as to make it descend according to the axis of the *pelvis*, which it often will not do without a particular precaution ; either on account of the natural curve of the *pelvis*, or because of the situation of the woman, whose breech is more or less sunk in the bed. This precaution consists in forming a kind of pulley for the umbilical cord, with the extremities of the fingers introduced into the *vagina*.

914. For this purpose, the accoucheur having taken the cord wrapped in a dry cloth in one hand, must pull it horizontally, while he carries three fingers of the other hand united behind the *os pubis*, as far as the entrance of the neck of the *uterus*, to push the base of the cord strongly backward, making it describe an elbow in that direction, in the same manner as if it were passed round a pulley.

915. By operating thus, although the cord be pulled in an horizontal direction, or nearly so, it is made to act upon the *placenta* as if it passed through the space between the *anus* and the point

of the *cocix*, and consequently nearly according to the axis of the superior *strait*.

916. This precaution is sometimes so necessary, that without it we might experience great difficulty in extracting the *placenta*; which might induce us to suppose it very voluminous, when it is only of the usual size; or imagine it very adherent, when entirely detached; and consequently make the accoucheur pursue a conduct quite different from what the circumstance would require.

917. When the *placenta* is descended into the *vagina*, we merely draw it towards us, by raising the hand which holds the extremity of the cord. As soon as the mass appears without, we take hold of it with the right hand, and support it with the left placed transversely, under the *vulva*; we then turn it five or six times round, in order to collect the membranes, and twist them like a cord.

918. No procedure is better calculated than this latter to bring away all the membranes, and prevent the accidents which have often been the consequence of the retention of some of their fragments in the *uterus*. If there is any case where this precaution appears useless, it is when the *placenta* is engrafted in the neighbourhood
of

of the neck of the *uterus*, and the membranes have opened near it; for we cannot then, by twisting the *placenta*, form a cord of the membranes, as in common cases.

919. Whenever we find any difficulty in extracting the *placenta* by pulling the cord, we must search for the cause, by advancing a finger far into the orifice of the *uterus*. It is also very proper to continue the frictions which I have recommended, on the *hypogastric* region, to solicit the expulsive action of the *uterus* more powerfully; and if the accoucheur cannot perform them himself, he must examine that region, from time to time, to inform himself of the degree of contraction and hardness of the globe of the *uterus*, that he may avoid dragging down the *fundus*, and inverting it.

S E C T I O N III.

Of Accidental Circumstances which oblige us to deliver the Placenta sooner or later, and to vary the Mode of Operating.

920. OF all the accidents which may oblige us to deliver the *placenta* before the union of all the
signs

signs indicated above, none is more urgent than a flooding; because the *uterus*, then weakened by the loss of blood, wants force to expel it, and its presence increases the hæmorrhage.

921. The hæmorrhage may be either apparent, or concealed. In the first case, a stream of blood flows from the *vagina*; in the second, that fluid is extravasated in the *uterus*, whose orifice is stopped up by the *placenta*, so that its *parietes* become distended, and its cavity filled. This latter species of hæmorrhage may become more dangerous than the other, on account of the false security of the accoucheur, while he waits the favourable moment for delivering.

922. This concealed hæmorrhage is never more to be dreaded, than after a labour preceded by a copious flooding, and especially if it be terminated suddenly; because the *placenta* being detached, and ceasing almost all at once to be supported by the child, presents itself at the orifice, before the *uterus* is sufficiently contracted to check the impulse of the blood. This accident may also happen after the *placenta* is delivered, if we should stop up the *vagina*, without any other precaution, in order to oppose the flow of blood, continued by an *atony* of the *uterus*.—See par. 999 and following.

923. Frequent *syncope*s and convulsions ought also to determine us to extract the *placenta*, and other foreign bodies which are the cause of them. Happy would it be, if the nature of convulsions would always permit it!

924. An atony of the *uterus*; a spasmodic or natural contraction of its neck; a preternatural adhesion of the *placenta*, and its confinement in a *cyst*, the mechanism of whose formation I shall develop hereafter—are some of the accidents which may require us to defer the deliverance a longer or shorter time. These latter circumstances demand some difference in the mode of operating, which could not be stated in the general description. A weakness, or rupture of the cord, also increases the natural difficulties which attend these cases, as we shall see in the sequel.

SECTION IV.

Of the Method of delivering the Placenta in case of Flooding.

925. THOUGH a flooding requires us to deliver the woman immediately, it indicates nothing

thing concerning the mode of doing it, which has not been already stated; unless it be when the *placenta* still preserves some of its adhesions to the *uterus*, when the cord is ruptured, or is too weak to bear the necessary force.

926. When the cord is whole, and sufficiently strong, it must be pulled with the usual precautions, while an assistant solicits the expulsive actions of the *uterus*, by proper frictions on the belly. If the *placenta* resists these united efforts, we must introduce the hand cautiously into the *uterus*, to extract it. We must do the same when the weakness of the cord, or any other cause, prevents our using it.

927. When the *placenta* is not entirely detached, we must search for the part where it is already separated from the *uterus*; and, insinuating the fingers behind it, destroy the rest of its adhesions, just as we separate two sheets of paper stuck together. During this time we are to take great care to fix the *uterus*, by pressing on the belly with the other hand (see par. 947), and neglect none of the means usually employed in flooding cases.

SECTION V.

Of Obstacles to delivering the Placenta, arising from an Atony of the Uterus, and from a natural or spasmodic Contraction of its Neck.

928. THOUGH an atony of the *uterus* obliges us to deliver the woman instantly, when it is accompanied by a violent flooding, it prescribes a very different conduct when there is no hæmorrhage; for then we ought to do nothing which may occasion a separation of the *placenta*, till the *uterus* recover from its insensibility, and be in a state to contract itself. In this case, it is only by deferring the delivery that we can prevent an hæmorrhage, and hinder the *fundus* of the *uterus* from being drawn along by the *placenta*, and inverted, or turned inside out like a stocking; a more dangerous accident than the former, and which the public has a right to attribute to the unskilfulness or neglect of the accoucheur, with so much the more reason, as it is always in his power to prevent it.

929. The spasmodic contraction of the neck of the *uterus* generally produces no more than a momentary obstacle to *deliverance*. It rarely gives any trouble, unless it become universal, or
is

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is accompanied by any other accident. The particular species of complication must then determine the choice of the methods to be pursued.

930. The natural contraction of the neck of the *uterus* never more strongly opposes *deliverance*, than after an abortion in the first four months of pregnancy. If it contracts sufficiently to cause some obstruction to it, after a birth at full time, it lasts but a very little while; for it is soon obliged to yield to the efforts of nature, and re-open to give the *placenta* a passage.

931. When there are no obstacles to *deliverance* but what depend on the natural contraction of the neck of the *uterus*, it must be deferred as long as that state requires. The delay is never very long after a birth at full time; but, after abortions, it is generally so much the longer, as the pregnancy was less advanced. We shall see, in one of the following sections, what we ought to do in those cases, either to hinder this contraction of the neck of the *uterus*, and promote the *deliverance*, or to prevent the sometimes troublesome consequences of a retention of the *placenta*.

SECTION VI.

Of Obstacles to Deliverance, proceeding from preternatural Adhesions of the Placenta; and of what must be done in those Cases.

932. THE union of the *placenta* with the *uterus* may be so close and strong, as to resist not only the efforts of that *viscus*, seconded by those which we can exert on the cord, but even the immediate action of the hand; at least, unless we risk exposing the woman to accidents a thousand times more dangerous than those we would free her from by delivering her.

933. This union, however strict it may be, is never formed otherwise than by means of a cellular membrane more or less dense; and we never see any thing of those *uterine cristæ* which some accoucheurs have talked of, and which they suppose shoot deeply into the anfractuosities of the *placenta*; which at least may secure us against any fear of tearing them, in endeavouring to detach the latter.

934. It is very rare that these extraordinary adhesions are equally strict in all parts. Generally there are only some lobes of the *placenta* which are, as it were, identified with the substance

stance of the *uterus*, so closely are they bound to it; while the rest adhere but slightly. But those lobes are sometimes found in the middle, and sometimes at the edge of the *placenta*; which may present different phenomena, and render *deliverance* more or less difficult.

935. Though this operation is easier when the *placenta* is partly detached, than when it adheres in all parts, it is also a more pressing circumstance, on account of the hæmorrhage which almost always accompanies it; whereas, in the latter case, that accident does not exist.

936. The part of the *uterus* occupied by the *placenta*, the part of the *placenta* where the cord is implanted, and a weakness of the latter, are so many things which may add to the difficulties arising from the adhesion, and require particular precautions in the operation.

937. We may form a good judgment of the part of the *uterus* to which the *placenta* is attached, by observing on what point of the edge of the orifice the cord bears, while we draw it tight with one hand; but it is only by passing the hand into the *uterus* itself, that we can discover the other varieties.

938. It is not necessary to introduce the hand into the *uterus*, to detach the *placenta* from it,
every

every time its adhesions are stronger than ordinary : it is often sufficient to pull the cord in such a manner that it may act perpendicularly to the center of that part of the *placenta* in which the cord is inserted.

939. To obtain that advantage, we must make the cord describe the elbow mentioned in par. 914 ; but in different directions, according to the part of the *uterus* where the *placenta* is attached. When it adheres to the anterior part of the *uterus*, we must proceed according to the directions in the aforesaid paragraph. When it is attached to the posterior part, we must make the elbow behind the *pubes* ; by introducing the fingers which form the pulley behind the cord, and pulling its extremity as much as possible towards the *anus*, so as to bring its base forward. This same elbow must be made at the right or left side, whenever the *placenta* is attached to the sides of the *uterus*.

940. The precaution of forming a pulley with the fingers, for the umbilical cord, to change the direction of the forces applied to its extremity, is never more necessary than when it is inserted in the lower part of the *placenta*. The reasons assigned for it by the celebrated M. *Levret* are so clear, that I cannot do better

than recommend the reader to consult him on the subject*. “ It very often happens,” says he, “ in this case, that the *placenta* appears to adhere very strictly, when we pull the cord in the usual manner, because it no more tends to separate any part of its circumference, than we could slide a paper towards us, cut in form of a battledore, and applied wet on a plane parallel to its surfaces ; for we should sooner tear off the handle of the paper, than separate it whole : whereas, if we lift up the handle to detach it, it easily quits the plane on which it is applied.”

941. It would be difficult to give a better idea of the thing, by a comparison more adapted to all capacities, than that which M. *Levret* has used. It is certain that by pulling the cord downward, when attached to the lower part of the *placenta*, we do not tend to detach any one point of the edge of the mass more than another, but all parts of its surface at once ; because the effort is divided, at the base of the cord, among all the vascular rays which are distributed from that part to the whole mass of the

* M. *Levret*, Suite des Observations sur la Cause et les Accidens des plusieurs Accouchemens Laborieux, page 139, 4^{me} edition.

placenta. So also it often happens that the cord is ruptured, when there are no extraordinary adhesions of the body to be extracted, if we neglect the precaution recommended.

942. Some of the fingers introduced into the orifice of the *uterus*, as near as possible to the base of the cord, are sufficient to change the direction of the efforts exerted by the other hand on its extremity, as observed in par. 938 and 939, and make them act perpendicularly on the part where the cord is inserted; although M. *Levret* orders the whole hand to be introduced. “If,” says he, “we pass the umbilical cord between the base of two fingers of one hand, without grasping it, as in the groove of a pulley; and introduce that hand to the *fundus* of the *uterus*, while with the other we pull the cord in the usual manner; we separate the *placenta* from the place of its attachment, in the same manner as we should separate a sole stuck to the floor with its own slime, by lifting up its tail, and bending it backward towards the head.”

943. By recommending this method in all cases of *battledore placentas*, M. *Levret* imagined that it was equally good, and equally necessary, in all; he was of opinion that the umbilical

cord is never found implanted on any other part of the edge of the *placenta* but the inferior, and consequently on the part nearest the orifice of the *uterus*: but I have already refuted that opinion, by proving that the cord may be implanted indifferently on any part of its internal surface, or of its edge (see par. 483). So much as it is necessary to form a sort of pulley for the umbilical cord, when it is implanted in the inferior edge of the *placenta*, so much that precaution is useless when it has struck its roots in the superior edge.

944. When the adhesions of the *placenta* resist the well-directed efforts which can be exerted on the umbilical cord, or when the cord is so weak that we cannot make use of it, many accoucheurs, even among the moderns, think it better to abandon the deliverance to time, and the efforts of nature, than to convey the hand into the *uterus* to perform it. This counsel, which we are sometimes obliged to follow, would be very prudent if we had nothing to fear from the retention of the *placenta*: but how many women have been victims to the accidents which seem inseparable from the putrefaction of that body (see par. 955), or from its presence only in the *uterus*!

945. We

945. We must then introduce the hand, to try at least to deliver the woman, and shield her from those accidents. This precept, authorised by the greater part of practitioners, becomes of the greatest importance, when the presence of the *placenta*, already detached in some part, occasions a copious flooding.

946. It is always advantageous to preserve the cord, whether we propose to deliver the woman immediately, or from prudence or necessity abandon the *placenta* to the efforts of nature. In the former case, it serves at least to direct the fingers to the mass; and, in the latter, to shake it from time to time, and even extract it, when the natural efforts shall have destroyed its adhesions.

947. As often as we pass the hand into the *uterus*, to detach the *placenta* from it, we ought to begin by fixing that *viscus* with the other hand applied to the *hypogastric* region; otherwise we should succeed with difficulty, and not without some risk of injuring the *uterus*.

948. We easily find the *placenta* while the cord adheres to it, because it serves for a guide; but we are obliged to seek for it when the cord is torn away. We then discover it by the following signs: 1. The internal face of the *pla-*

centa is covered with vascular rays, very sensible to the touch. 2. The woman can scarcely distinguish the presence of the fingers when they touch that body. 3. That region of the *uterus* is softer, and twice or thrice as thick as any other part, comprehending the thickness of the *placenta* which is attached to it.

949. As it is very rare that the *placenta* is not already detached in some part, when we introduce the hand into the *uterus*, we must endeavour to discover that part; in order to continue the separation from that point to that which is farthest from it. But, when the *placenta* still adheres in all parts, we must begin the separation where it appears most convenient and easy.

950. When it is found already separated from the *uterus* in some part of its circumference, the ends of the fingers must be insinuated under it, and the hand advanced gently between those two parts, as directed in par. 927.

951. When the mass is united to the *uterus* through the whole extent of its circumference, and is detached in the middle, we must pull the umbilical cord, to enable us to grasp the detached part with the ends of all the fingers; which is not difficult to do, because it presents itself, as it were, forming a projection more or less salient
from

from the *uterus*. If this method does not succeed, we must endeavour to separate a part of the edge of the *placenta*, in order to insinuate the hand under it; or we may pierce it with the end of the finger, near the base of the cord, and finish its separation from the *uterus* by passing the finger all round behind it. I have succeeded by this means in a case of that sort, after I had tried other ways in vain.

952. Before we endeavour to extract the *placenta*, we must carefully observe whether it be entirely detached; for, being of a fungous nature, and easily torn, the adhering portion might remain in the *uterus*, and cause the same accidents as if the whole were retained.

953. There are however some cases, where, far from persisting to extract the whole of the *placenta*, prudence requires that we should leave a portion of it to nature. *Smellie* gives us an example of this sort in his excellent work; where we find he thought it better to follow this method, than to risk tearing the *uterus* by endeavouring to detach a portion of the *placenta* which appeared to him to be *schirrhous*. I have twice met with the same thing; and, in one of those cases, the portion of the *placenta* which I left in the *uterus*, with a perfect knowledge of

the cause, was not expelled till six weeks afterwards. It was then about the size of a walnut, and so withered, that we could tear it without soiling the fingers.

954. If the adhesions of the *placenta* are so strict as to form in a manner one and the same body with the *uterus*, we must act as *Smellie* did, on account of a portion of it which appeared to him identified with that *viscus*, and as I have done myself; that is to say, abandon it for a time to the efforts of nature. The union of the *placenta* may relax, or dissolve; and it will then present itself readily to the hand of the accoucheur.

955. We must not however conceal how dangerous the consequences of this circumstance, happily very rare, may be; especially if we do not pay it the strictest attention. The putrefaction of the *placenta*, almost always inseparable from its retention in the *uterus*, may become the source of a multitude of accidents; among which, a *fætor* of the *lochia*, suffocation of the *uterus*, *syncope*s, a slow fever, and *insomnia*, are the slightest.

956. Accoucheurs have hitherto applied themselves more to provoke the expulsion of the *placenta*, than to prevent or moderate the effects of its

its retention ; without considering whether nature were disposed to get rid of it, or whether there might not be more inconvenience in extracting it, or provoking its expulsion, than in leaving it. Of all the remedies to which empiricism, rather than rational practice, has attributed the power of expelling the *after-birth*, none are more dangerous than the greater part of those known by the name of *emmenagogues*. They inflame the mass of blood, instead of calming the irregular motion by which it is then too often agitated, &c.

957. Antiphlogistics and antiseptics ought rather to be employed, according to circumstances. Great advantages may likewise be derived from emollient, deterfive, and antiseptic injections, repeated several times a-day. They relax the adhesions of the *placenta*, wash away the putrid matter which drains from it, and prevent the accidents which might be the effect of its absorption.

958. We must then touch the woman from time to time, to examine if the *placenta* be not detached ; in order to extract it, either by gently pulling the cord, if it has been preserved, or otherwise ; that it may no longer corrupt the *lochia*, or retain them in the *uterus*, by stopping its orifice ; and that health may be more quickly restored.

SECTION VII.

Of the Retention of a Portion of the Placenta, and of Clots of Blood in the Uterus ; and the Precautions necessary in those Cases.

959. THE extraction of a portion of the *placenta*, or of a clot formed in the *uterus*, must be considered as part of the *deliverance* ; since the presence of such foreign bodies may cause the same accidents as the retention of the whole of the *placenta*.

960. It is not always from the *placenta* itself that those portions are detached which remain in the *uterus*, and oblige us to pass the hand into it. They are sometimes a species of *cotyledons*, little masses distinct from the principal one ; and which form, as it were, so many little islands on the membranes : which makes it much more difficult to discover them.

961. We may discover whether any part of the *placenta* is left in the *uterus*, by collecting and putting together all which is extracted ; but we cannot discover the existence of *cotyledons*, or those little masses I have just mentioned, but by introducing the hand into that *viscus*. The tearing of the *placenta* always makes us presume the presence

presence of the former, and we may search for it immediately : whereas the traces which the others leave on the membranes, are exceedingly equivocal ; so that we can have no certain signs of their existence, either immediately after *deliverance*, or in the sequel ; because the accidents they produce may proceed from another cause.

962. The retention of these portions of the *placenta* is no otherwise alarming, than as it becomes the cause of other accidents, of which the most to be feared is an hæmorrhage. That may manifest itself sooner or later ; I have seen it not appear till the tenth day after delivery. When it is abundant, as it was in that case, it requires us to pass the hand into the *uterus*, to extract the foreign body from it.

963. When there are no other accidents but what are the consequence of the putrid dissolution of the retained portion of the *placenta*, we must have recourse to the injections indicated in par. 957, and vary them according to circumstances.

964. If we were certain of the existence of these portions of the *placenta* at the time of the *deliverance*, it would be better to extract them immediately, than to wait till succeeding accidents oblige us to it : but if we are not called

till some time afterwards, there must be very great accidents, to determine us to take the same method: because nature alone almost always delivers herself of these foreign bodies; and we have only to guard against the effects of their putrefaction, during their stay in the *uterus*.

965. In searching for the portions of the *placenta* retained in the *uterus*, when circumstances require it, the accoucheur need not fear tearing those pretended uterine productions, which some have compared to *cristæ*, and have described under that name, for we never find any thing like them: besides, their sensibility would make it easy to distinguish them from the former, if they really existed.

S E C T I O N VIII.

Of Deliverance when the Placenta is encysted.

966. THE *placenta* is said to be encysted, when it is contained in a cell making part of the cavity of the *uterus*; but which nevertheless sometimes appears as distinct, as that of the body of that *viscus*, in its natural state, is from the cavity of its neck.

967. This

967. This species of *encystment* is not a very new discovery. We find examples of it in the works of *Peu*: but that author knew not the true cause of it; since he looked upon it as the effect of an original misconformation of the *uterus*, which he thought was then divided into two cavities. Among those who have mentioned this species of *cyst*, some have attributed it to the natural structure of the *uterus*, and others to an irregular and spasmodic contraction. The latter thought that the *placenta* was never encysted but when it was attached to the lateral parts of the *uterus*, and the former only when it occupied the center of the *fundus*. The latter sentiment appears most conformable to my experience, and the notions I have of the structure and functions of the *uterus*.

968. The fibres of this organ are in fact so disposed, that, when it contracts, its cavity always preserves the form of the body contained in it. This cavity, before the waters of the *amnion* are drained off, has a sort of regular figure, which in general it loses so much the more, as the child remains a longer time in it after the complete evacuation of that fluid. The *uterus* then closing more on the child's neck, than on the head and *trunk*, which are larger, takes a
form

form something like an hour-glass ; as may be easily perceived when we are obliged to turn the child long after the exit of the waters, especially when it presents the head.

969. That circle of the *uterus* which is round the child's neck, according to the general laws of its contraction, must narrow itself much quicker after delivery than the other circles which compose that *viscus* ; because it is already narrower, and its forced dilatation at the instant of the expulsion of the child's trunk is only momentary, and because it has naturally more tendency to close than the other circles have ; since it is that which constitutes the neck of the *uterus*, in its natural state. Now, the two cavities which I have just mentioned, will be so much the more distinct, after the expulsion of the child, as that circle which divides them shall become narrower, and be more strongly contracted.

970. When the cavity of the *uterus* is thus divided, the *placenta* is sometimes found in one cell, and sometimes in the other ; or each of them contains a part of it, according to the place of its attachment. Thence we find *placentas* completely encysted, and others only in part.

971. All

971. All those who have mentioned the *encystment* of the *placenta*, have not had the same idea of it which I have just laid down; they imagined that the cell which contained this mass, though formed at the expence of the cavity of the *uterus*, could not be taken for that of the body, nor for that of the neck, of that *viscus*: so that, supposing the internal orifice closed, as I have stated in par. 969, there would then be three cavities or cells instead of two. I have not yet met with such a case in the course of my practice; several accoucheurs, as much employed as I, have assured me that they have never seen it; and M. *Levret* relates but one example of it within his own knowledge: which proves that this case is as rare, as its explication is difficult. In the case related by M. *Levret*, a midwife who had endeavoured to deliver the woman, having torn off the umbilical cord, passed her hand into the *uterus*, and found at the right side a sort of opening; which made her believe that the womb was torn, and that the *after-birth* had penetrated into the *abdomen*. This opening, which M. *Levret* also discovered, was, adds he, exactly round, two inches wide, and on a level with the internal surface of the *uterus*. It was the entrance of a cell which contained

contained the *placenta*, which had formed accidentally after the exit of the child, and which vanished insensibly after that of the *after-birth*; as M. *Levret* certified himself, by passing the hand three times into the womb of the woman *.

972. Some authors have also mentioned several cases where the *placenta* was, as it were, only fixed in the substance of the *uterus*; that is to say, that the cell which contained it was very shallow, that its opening was very wide, and that the edge of it only covered the edge of the *placenta*: but we ought to take care not to suffer ourselves to be imposed on by false appearances †.

973. In whatever manner the *placenta* may be encysted, the *deliverance* is generally performed in the usual way; it is only a little more difficult, because nature has to overcome not only the resistance of the neck of the *uterus*, but that of the entrance of the *cyst* also.

974. If we cannot perform it in the usual way, that is to say, by pulling methodically at

* Suite des Observations sur la Cause des Accouchemens Laborieux, edit. 4^{me}, page 129, obs. xxvii.

† M. *Leroux*, Observ. sur les Pertes de Sang, &c. page 136, obs. liii.

the umbilical cord, while an assistant endeavours to solicit the expulsive action of the *uterus*, we must advance the hand to the entrance of the *cyst*, dilate it properly, detach the *placenta*, and extract it, as has been already directed, whether we can make use of the umbilical cord or not.

975. It would be useful to pass the hand again into the *uterus* immediately after the exit of the *placenta*, if the *cyst* were of the species mentioned by M. *Levret*; either to empty it of any clots which might be formed in it, or to make it contract afterwards, so that the two cavities may be reduced to one. That may be obtained by holding the hand, or some of the fingers only, in the species of neck which divides the cavity, till the portion which is beyond it, or which forms the *cyst*, be sufficiently closed.

S E C T I O N IX.

Of Deliverance in those Cases where the Placenta is attached to the Neck of the Uterus.

976. WE no longer fear now, as in the time of *Deventer*, being charged with advancing a
 VOL. II. D. paradox,

paradox, in declaring that the *placenta* is sometimes attached to the neck of the *uterus*, and covers its orifice. Real practitioners are agreed on the certainty of this fact, because there are none who have not several times met with it.

977. In all other cases, the *placenta* does not present till after the child, and the pregnancy may pass through all its stages without being disturbed by an hæmorrhage; but in this case the *placenta* presents first, and a flooding before delivery seems to be essential to it: but it may manifest itself sooner or later, according to circumstances. Sometimes it appears as early as the sixth month, sometimes not till the ninth, or even till the approach of labour; but generally from the seventh to the eighth month. It is always slight, and may be stopped by the usual remedies when it begins early: but it soon appears again, and becomes so much the more abundant, as the woman approaches nearer to the end of her pregnancy; so that it is never more excessive than during the course of labour.

978. We cannot discover whether the orifice of the *uterus* be the seat of the *placenta* or not, without passing the finger into it. Instead of the very smooth membranes which are usually felt,

felt, we then find a soft and fungous substance ; all other signs are uncertain, and exceedingly equivocal. But these examinations ought to be made with the greatest care, because they may become hurtful ; for the finger may detach a salutary clot, which opposed, or at least moderated, the hæmorrhage.

979. As the choice of the best methods to be pursued in this case, depends less on the place where the *placenta* is situated, than on the violence of the hæmorrhage which proceeds from its separation, we need not trouble ourselves at the beginning with endeavours to discover its seat.

980. When the hæmorrhage is slight, or even moderate, we prescribe the most exact repose ; and keep the woman as much as possible in an horizontal position : we bleed her, if circumstances require it ; that is to say, if she appears plethoric ; we give her none but the most cooling and incrassating drinks, and aliments of the same nature. If the hæmorrhage continue notwithstanding these precautions, and become more considerable, cloths dipped in vinegar and cold water may be applied to the belly ; and we may introduce a kind of tent or pessary of fine tow or lint, moistened with the same liquor,

into the *vagina*, or even into the neck of the *uterus*, if it be sufficiently open. If the flooding resists all these methods, and endangers the woman's life, we must excite the labour pains, and deliver her.

981. If this last resource is salutary to the mother, and preserves her life, we ought not to dissemble how dangerous it is to the child. It runs so much the more risk, as it is then farther from the period of its maturity, and as the neck of the *uterus* is naturally less disposed to give it a passage. But of two evils we must choose the least; though the child is endangered by this premature delivery, its loss is inevitable if we neglect it, and that of the mother is not less so. We must not even defer it too long, in the hope that pains will come on, and the labour take place naturally, or that an hour's delay will produce more favourable dispositions; for that hope is perfidious: and an instant often decides the fate of two individuals, who might have been preserved by acting with a little more celerity, and less timidity.

982. Since we must then have recourse to delivery, we ought to perform it in the surest and gentlest manner possible. The method of

Puzos * cannot in this case have those advantages which have been generally found in it when the source of the hæmorrhage is farther off. In those cases the flooding ceases or diminishes after the evacuation of the waters, in proportion to the strength of the pains, and the diminution of the cavity of the *uterus*; so that the labour may sometimes be allowed to go on naturally, without danger to the woman. But when the *placenta* is attached to the neck of the *uterus*, if the hæmorrhage is suspended for a moment when the waters are evacuated, it soon appears again; and becomes so much the more abundant, as the orifice of the *uterus* dilates farther, and as the violence of the labour increases. I have met with but one case, where the flooding has entirely ceased after the evacuation of the waters, out of at least five-and-twenty where the *placenta* was attached to the neck of the *uterus*; but this single case cannot establish a rule †.

983. If

* *Puzos* advised, in case of violent flooding, to excite the labour pains by dilating the neck of the *uterus*, and opening the membranes.—See his excellent observations on uterine hæmorrhages at the end of his work.

† A midwife had extracted the *placenta* some hours before I was called, and had not been able to turn the child, whose

983. If in this case we should determine to evacuate the waters of the *amnion* before the state of the neck of the *uterus* will permit us to deliver the woman, and if as much benefit could result from it as in other flooding cases, it might be more advantageous to do it by passing a *trocar* through the *placenta*, than by making a hole in it with the finger: but I am far from proposing this method, as well because its application might produce inconveniences, as because the evacuation of the waters cannot then be of any utility.

984. When the orifice of the *uterus* is properly disposed for delivery, we detach the *placenta* from one side of it; and always, when we can discover it, from that side where its edge approaches nearest to the orifice. We tear the membranes at the edge of the mass, then search for the child's feet, and extract it as in common cases.

arm was engaged below the head. The *uterus*, irritated by the manœuvres of the midwife, was strongly contracted on the child, and discharged but a few drops of blood. Astonished, after the extraction of the child, to see the cord was torn off near the *umbilicus*, and more surprised still not to find the *after-birth* in the *uterus*, I discovered that it had been extracted a long time before my arrival, and carefully concealed.

985. Some

985. Some practitioners prefer piercing the *placenta* in the middle, and passing the hand through it to turn the child; but this method is more difficult, and less certain, than that which I propose. Those practitioners almost always expose the *placenta* to a total separation by acting thus; and tear some of the principal roots of the umbilical cord. Besides, the child being obliged to descend through the *placenta*, seldom fails to bring it along with its shoulders: which augments the difficulties, by adding the volume of that mass to that of the shoulders; and occasions some other inconveniences.

986. A woman left to herself, and who cannot procure any help, is not always absolutely without resource, when the *placenta* is attached to the neck of the *uterus*. In some cases, when the orifice is fully dilated, the mass may separate entirely from it, and be so far removed from one side, that the membranes may present. The membranes may then tear spontaneously, and delivery be performed naturally, if the woman, notwithstanding her loss of blood, still preserves sufficient strength, as has sometimes happened.

987. Things indeed rarely go on thus, when the center of the *placenta* answers to the middle

of the orifice; because it cannot dilate sufficiently to separate the edge of the mass from one side, that the membranes may open. The *placenta* then detaching itself circularly, is pushed down by the child's head, so as to be delivered first.

988. If we are not called till this period, after having detached the mass from one side, and opened the membranes, it is better to use the forceps, than to turn the child, and bring it by the feet. But, for want of that instrument, we may take the latter method, though the child's head be also engaged.

989. When the *placenta* still preserves a part of its adhesions to the *uterus*, after the exit of the child, we ought to wait till the action of that *viscus* has destroyed them, before we extract it; unless a continuance or renewal of the hæmorrhage oblige us to deliver the woman sooner. In all these cases, as well as in those where the *placenta* is attached in the neighbourhood of the orifice, the whole of the membranes seldom come away, without the greatest attention; because they detach themselves circularly from the *placenta*, if their adhesions resist ever so little. We must then take all possible care that they may not be left behind,
left

lest their stay in the *uterus* should be the cause of troublesome accidents; and the accoucheur should be taxed with inattention and unskilfulness, when they are seen to come away afterwards, in the form of a portion of the *after-birth*. In order to extract the whole of them, we must take hold of them close to the *placenta*, as soon as that is without, and pull them cautiously; while with the other hand we solicit the *uterus* to expel them by frictions on the *hypogastric* region.

S E C T I O N X.

Of Deliverance after an Abortion.

990. CASES in which we may be obliged to commit the *deliverance* to nature, and confess the impotence of art to effect it, are never more frequent than after abortions; since we then have scarcely any of those resources, which we meet with after a birth at full time.

991. The difficulties of delivering the *placenta*, in these cases, generally increase in an inverse proportion to the term of gestation: they are so much the greater as that is less advanced,

advanced, and diminish in proportion as the abortion or delivery approaches nearer to the period of nine months.

992. Before the third month, nature finds fewer difficulties in freeing herself from the whole produce of conception at once, than in expelling the after-birth separately; but after that period we observe the contrary. Experience teaches us, moreover, that it is very rare that those deliveries are not performed according to the intentions of nature, when the accoucheur does not disturb her course by seeking to assist her; for it is as rare to see the *fœtus* precede the exit of its *involucra*, before the third month, as to see it come enveloped in them after the fourth.

993. According to this natural indication, we ought never to open the membranes with a view of abridging the labour of an *abortion*, however tedious it may be, when it takes place before the third month; as we ought never to fail to do it after that epoch, if the membranes do not tear of themselves, as soon as the orifice of the *uterus* is sufficiently dilated to give a passage to its contents.

994. In the former case, if the membranes should open spontaneously, or otherwise, before the
the

the orifice of the *uterus* be sufficiently large to expel its contents entire, they discharge the waters and *fœtus*, which is still very small: they afterwards collapse, and cannot be expelled but by a much longer labour, and which is often retarded several days; because by that evacuation the *uterus* loses a part of the sensibility and irritability it had acquired, and which were necessary for the farther progress of its contractions; and because its orifice closes during that state of rest.

995. If we were near the woman at the time the membranes open, we ought to introduce one or two fingers into the orifice of the *uterus*, to hinder it from closing, and favour its farther dilatation, till it be sufficient for the *deliverance*; which would then take place without any more trouble, and in a very short time: but when we are not called till after the discharge of the waters, we must wait patiently, unless a flooding oblige us to act.

996. But how can we deliver the woman in this latter case? The umbilical cord, brought along by the *fœtus*, is torn off; and is besides so slender, that it could not be used in extracting the *placenta*. The external parts of the woman, and the entrance of the *vagina*, are so close,

that the hand could not penetrate it without force, and exciting a great deal of pain; the neck of the *uterus*, scarcely at all dilated, will admit at most but a single finger, which, far from serving to extract any portion of the *placenta* that might be engaged in it, could only push it back again towards the *fundus*.

997. When all things are in a state so little favourable to *deliverance*, if the flooding is not violent, the accoucheur must content himself with soliciting the action of the *uterus* briskly, and endeavouring to make it contract with sufficient energy to finish the detachment and expulsion of the *placenta*. By this means he may often obtain from nature, in a quarter or half an hour, what he could not have obtained otherwise without a great deal of time and trouble.

998. When a portion of the *placenta* is engaged in the neck of the *uterus*, so as to project a little into the *vagina*, we may take hold of it with two fingers, in order to loosen and bring along the rest: but it must be done cautiously, lest we tear it; which would but retard the complete *deliverance*. This also is the time when M. *Levret's pince à faux germe* is most applicable, if it can be usefully employed in any case;

case : for it cannot be of the least utility while the little *placenta* is shut up in the *uterus* ; unless we incline to use it to dilate the neck of that *viscus*, and prepare it for the exit of the *after-birth*.

999. Though we may temporise thus, or confine ourselves to these feeble succours, when the flooding is moderate, we must act very differently when it is so considerable as to put the woman's life in sudden danger. If we cannot extract the *placenta* immediately, we must, without delay, stop up the passage, and hinder the blood from flowing ; and by that means cause the formation of a *coagulum*, which, by exactly filling the cavity of the *uterus*, may stop the mouths of the gaping vessels, and check the violence of the hæmorrhage. For this purpose we may introduce a piece of agarick into the neck of the *uterus* ; or, if we can, a plug of very fine tow, or lint, moistened with vinegar and water, with which the *vagina* may be entirely filled ; we must take care to support this plug properly, till the *uterus*, irritated by its presence, by that of the *coagulum*, and the *after-birth*, contract with sufficient force to deliver itself of them all.

1000. This

1000. This method, whose utility has often been proved by experience in cases of abortion, as well as in those of inveterate or habitual hæmorrhage, might have very disagreeable consequences if we were to employ it without any other precaution, after a delivery at full time : because there might then be an internal extravasation capable of destroying the woman, as we see in one of the observations of La Motte *; the cavity of the *uterus* then being too vast, and its *parietes* giving too little resistance to the influx of blood. If we should be obliged to plug up the *vagina* in the latter case, as I have done several times with success, we must, while we support the plug with one hand, oppose the development of the *uterus*, by pressing on the *hypogastric* region with the other, and grasping, as it were, the body of that organ with all the fingers.

1001. When the *placenta* of an abortive *fœtus*, which we cannot extract, putrefies in the *uterus*, and produces any of the accidents stated in par. 955, we must have recourse to the injections prescribed in par. 957 ; but, if nothing of that kind happen, we need not be uneasy

* Observation 386, nouv. edit.

about it. Some women, after retaining it several months without being at all incommoded by it, have at length discharged it, withered and reduced to almost nothing.

S E C T I O N XI.

Of Deliverance after the Birth of Twins.

1002. THE connection which twins almost always have by means of their *involucra*, shews us of what importance it is, not to undertake to extract the *placenta* till after the birth of the last; though some observations seem to authorize the contrary practice.

1003. Each twin having sometimes its *involucra* very distinct, and perfectly separate, and the *placenta* of one being only placed close to that of the other, we might without the least inconvenience, immediately after the exit of the first child, extract its *after-birth*, and do the same with regard to the second: but how can we discover this case, which is besides extremely rare, before we proceed to the *deliverance*? As no signs can enlighten us on this point; and as it much oftener happens that
there

there is but one *placenta* for the twins—or that the two masses are so bound together by means of the *chorion* which envelops the two children, that we could not extract one without detaching the other at the same time, which might be equally dangerous to the mother and the second child—we ought never to attempt it till after the exit of the latter. I only except the case where the *after-birth* of the first child presents itself, as it were, to the hand of the accoucheur.

1004. Since then we ought not to extract the *placenta* till after the exit of the last child, except in those cases where nature points out a different mode, by pushing the *placenta* of the first to the entrance of the *vagina*, perhaps it would not be useless in the mean time to tie the cord which descends from that mass, as some have recommended: but we must untie it again at the time of its extraction, in order to empty the common *after-birth*, and by that means favour its *deliverance*.

1005. We begin by pulling both cords, and proceed as if there had been but one child. If the *placenta*, more voluminous than in the latter case, does not yield to these efforts, we may act on only one of the cords, in order to bring
down

down the two masses, one after the other; and if we still meet with the same difficulty, we may introduce two fingers into the neck of the *uterus*, and endeavour to bring it along edgewise.

A R T I C L E II.

Of the Management of the Woman after Delivery.

S E C T I O N I.

Of what is to be done immediately after Deliverance, during the Time the Woman must remain on the Couch.

1006. As soon as the *placenta* is delivered, whether that operation has been performed spontaneously or not, the accoucheur ought to inform himself, by touching, whether the *placenta* has not drawn down and inverted the *fundus* of the *uterus*, or whether the whole of that *viscus* be not descended too low; that, in the latter case, he may raise it up; and, in the former, reduce the inverted part immediately.

1007. When, in this respect, every thing is in the natural order, it will suffice to rub the *abdomen* with the hand, and repeat it now and then, to excite and maintain the spring or tonic action of the *uterus*, to favour its depletion, and prevent the formation of clots, which often become the source of many accidents.

1008. As the woman ought to remain some time on the couch where she has been delivered, either to rest herself a little, or because it would be imprudent, and even dangerous in some cases, to move her immediately (as in those when the delivery has been preceded or followed by an hæmorrhage, by *syncope*s, or any other accident; as also when there is any reason to fear they may happen), she must be kept clean by substituting dry cloths for those which are wetted.

1009. She must be kept at first as much as possible in an horizontal position; she may draw her legs up and down; she must be covered according to the season, and be enjoined silence, and the most exact repose.

1010. It is not less necessary to keep the mind quiet, than the body: experience proves that every thing which affects it strongly, may have disagreeable consequences. How many
women

women have been victims of an impulse of joy, of immoderate anger, or other similar passions, immediately after delivery!

1011. If the woman is thirsty, we may give her some of those drinks mentioned in par. 789, or a little broth, if necessary. But we ought to proscribe entirely the use of spirituous liquors and heating potions, which are indiscreetly taken by the lower class of people, whether with a design to raise the spirits, or prevent after-pains.

1012. This first moment is likewise that in which every good woman comes to offer her little *formula* against those pains, which indeed are sometimes more troublesome than those of labour: but, besides that the greater part of these pretended remedies are of no use, some of them may do harm. Though the accoucheur, without approving these remedies, is sometimes obliged to permit their use, to quiet the mind of the woman, and not incur the ill will of those who propose them, his complaisance in that respect ought to extend only to those which by their nature, or quantity, can do no harm.

1013. These pains, as uncommon after the
E 2
first

first labour as usual after the rest, may depend on several causes, and each of them require different remedies: sometimes they are produced by an *engorgement* of the *parietes* of the *uterus*; and sometimes by the presence of a clot, or a fragment of the *placenta*, which cannot be expelled but by efforts similar to those of labour.

1014. Bleeding at the arm before delivery, or in the foot some hours afterwards, as is practised in some nations, may prevent a part of these pains, by diminishing the *plethora* and *engorgement* of the uterine vessels. They may also be in some measure prevented by continuing, a long time after *deliverance*, the frictions which I have recommended to be made on the *hypogastric* region; because they maintain that action by which the *uterus* closes and hardens, and put it in a state to resist the influx of so great a quantity of fluid. There is always a great many after-pains when the volume of the *uterus* is developed anew after *deliverance*, and when the development depends on an *engorgement* of the *parietes* of that *viscus*. The expulsion of foreign bodies can alone appease the pains caused by their presence: and

in that case nature seldom requires help; we need only inspire the woman with a little courage.

1015. Emollient fomentations, cataplasms applied on the *hypogastric* region, glysters, drinking a large quantity of a light infusion of elder flowers, or other things of that kind, cannot but procure a real benefit in all these cases, and especially when there is an *engorgement*. Sometimes these pains are so violent, and women suffer so cruelly from them, that we are obliged to give them some quieting potion: in that case we may give them a little of *Hoffman's* mineral anodyne liquor, in any simple water.

1016. After this short digression on the after-pains, we must not forget that the woman is still on the couch, and must soon be put to bed, where she will be more at her ease: this latter then must be prepared and covered properly, that the *lochia* may not penetrate it; because it cannot be changed so often nor so conveniently as cloths.

1017. Before we remove the woman, we must take every thing from her that has been moistened with sweat, or with the waters and blood which have drained from the *uterus*.

This is what the nurses call putting the woman to bed. Though the accoucheur is rarely admitted to this toilette, and still more rarely obliged to put his hand to it; it is however proper that he should know in what it consists, and be acquainted with its advantages and abuses.

S E C T I O N II.

Of putting the Woman to Bed.

1018. NOTHING is indifferent in the time of lying-in; at that time things the most simple in appearance sometimes become very pernicious: and women are often victims of a vain advantage which they endeavour to procure for the time to come; or at least of their ignorance, or of that of their nurses. Those women will perhaps be obliged to me for attending to their first adjustment; then it will be of little importance that some accoucheurs reproach me for having entered into these details.

1019. Every nation has, as I may say, its particular manner of dressing and managing
lying-

lying-in women: the same method perhaps cannot pass every where for the best. I shall speak only of that which is in use among us; but I must premise that fortune has caused as many varieties in it, as she has established different conditions among women.

1020. I cannot condemn the precaution of some women, who, desirous of preserving their hair, comb out the powder and pomatum some days before delivery. By thus depriving the teguments of the head of that species of crust which covered it, they often derive a more real advantage from it than the greater part of them seek in it; for, by favouring the transpiration of the part, they prevent pains in the head, which are sometimes very difficult to conquer.

1021. Some women, after being delivered, imagining they cannot be too much secured against cold, cover their heads with a number of caps and kerchiefs; while others, from a contrary principle, leave them almost naked. Excess of heat being as pernicious as cold, we ought to observe a just medium in the head-dress, and have a regard as well to the habits of the woman, as to the season of the year.

1022. The shift is generally very short, and

open before through its whole length : in other things it is pretty much like a shirt; having long sleeves, with wristbands, and a collar. We have great reason to prefer this to a common shift, since the prejudices of the people very rarely permit it to be changed before the seventh day. This shift being very short, and open like a waistcoat, is less exposed to be soiled by the *lochia*; and leaves more liberty to make proper applications to the breast and *abdomen*, and to change the cloths when necessary.

1023. Over this shift the women put a bed-gown with long sleeves, and often two, without any regard to the season; so that some, to preserve themselves from cold, are oppressed with heat, and the weight of the clothes, which cannot be too light and free while they lie in bed.

1024. It is not very easy to discover whence is derived the custom generally adopted in France, and in some neighbouring countries, of binding the breast and belly of lying-in women, nor with what view it was done at first. It is much more easy to perceive that all women do not reap the fruit they expected from it; and that some, instead of the vain advantages

tages they sought, find in it a source of evils, to which sooner or later they become victims.

1025. Some women, in binding the breast thus, have no view but to defend it from the contact of the air, and to keep it warm; others propose to themselves the preservation of its form and beauty, by hindering the influx of milk, and the consequent distention. The former bind it loosely, the latter very tight, and also frequently apply topical astringents to it; but some of them purchase this vain beauty, which they surely prefer through ignorance, at the price of their future health*.

1026. It is the same with the bandage applied round the belly. Women, in seeking by that to recover the elegance of their shape which pregnancy had deprived them of, frequently subject themselves to inconveniences

* A bandage too tight, applied with a design to check the milk, in a poor woman, having opposed the development of the breasts, occasioned an alarming suffocation on the third day after delivery, with violent pains in the head, and convulsions; which did not cease till the milk was allowed to pass freely into the breasts, and distend them.

Another woman, actuated by the same desire, was struck with a mortal apoplexy in less than half an hour, on the fourth day of her lying-in. I found the bandage so tight, that the breasts were in a manner crushed under it.

which

which last as long as they live. *Peu* and *Mauriceau* have declared against the abuse of this bandage; but they did not think it ought to be proscribed entirely. *Smellie* has demonstrated its utility in women threatened or attacked with faintness, or *syncope*s, immediately after delivery: he even recommended to compress the belly of the woman while the bandage was preparing.

1027. Experience, which had confirmed its advantages to me before I knew the precepts of *Smellie*, has since taught me that it may be useful in some cases of flooding after delivery, by making a pressure on the abdominal vessels, and moderating the course of the blood towards the *uterus*. At other times it opposes the dilatation and puffing up of the intestinal canal; it prevents hernias, by resisting the impulsion of the floating parts. Lastly, I have remarked that, at the same period after delivery, those women who had not had the belly gently confined in the first days, had the *uterus* more voluminous and plethoric than others.

1028. It seems to me, according to these observations, that this bandage ought not to be omitted; and that, in some cases, it should be applied immediately after *deliverance*. The ne-

cessity of binding the breast is not so evident, and I think it better to let it alone: it is sufficient, in order to maintain the necessary warmth, to cover it with a soft napkin, or one of those pieces of quilting which the women make for that purpose.

1029. The bandage for the belly is made in the following manner:—We first apply a very soft napkin, folded in a square or triangular form, to the *hypogastric* region; then apply another over it, folded lengthwise, which must go round the belly. It should not be very strict at first; but we may afterwards tighten it by degrees, in proportion as the volume of the *uterus* diminishes.

1030. A kerchief on the neck, a cloth round the loins and thighs of the woman, after the manner of a petticoat, and a soft napkin applied to the *vulva*, must finish her adjustment. We then transport her to the bed, and prescribe a regimen according to her condition.

1031. It would be difficult to fix the method of treating women in the month, or even to establish general precepts on the subject, without first making known the principal phenomena which manifest themselves after delivery,

very, and their differences relatively to the various circumstances which may happen. I shall state them very briefly.

S E C T I O N III.

Of the principal Phenomena which manifest themselves in the Month.

1032. THE symptoms subsequent to delivery have been distinguished into natural and accidental. The former present us with an infinite variety, dependent on the constitution of each individual; the latter are sometimes the effect of a predisposition to disease, which labour has only called into action; and sometimes they depend on the bad habit of the subject, the unskilfulness of the accoucheur, the neglect of a proper regimen, or on some unforeseen events. I shall only speak of the usual subsequent symptoms; for the others alone might furnish matter for several volumes*.

* On the latter, a great number of works may be consulted, which treat particularly of the diseases of women in the month.

1033. A kind of faintness, or lassitude, like that which is felt after violent exercise, soon succeeds to the agitation excited by labour: but the pulse quickly revives, a warmth is diffused through the body, the skin becomes moist, a salutary perspiration breaks forth, the limbs recover their former liberty, the order of the functions is re-established; and a perfect calm succeeding to this violent effort of nature, permits the woman to enjoy peaceably the happiness of being a mother.

1034. During the first days there is a copious discharge at the *vulva*. At first, of pure blood, whose colour and consistence begin to weaken sooner or later, and diminish insensibly; so that, in about twenty-four hours, it is commonly nothing but a reddish serum, which soon after changes again. It becomes in a short time thicker and whiter, and, as it were, purulent; which has caused it to be called *puriform lochia*, while the two former species are named *sanguine* and *serous*.

1035. The duration and quantity of these different species of *lochia* likewise depend on a great number of different circumstances, which I shall not mention in this place. The *sanguine lochia*

lochia sometimes flow during the first two days, with or without pain; which depends on the state of the *uterus*, and the nature of the blood, which sometimes passes fluid, and sometimes in clots. It is the pains excited by the presence of those, which are called after-pains.—See par. 1012, and following.

1036. If we were less acquainted with the mechanism by which these first *lochia* stop, it would be matter of astonishment that all women do not perish by an hæmorrhage soon after delivery; so great is the diameter of the vessels, at that time, which transmit the blood to the *uterus* (see par. 555). Though this evacuation seldom continues beyond the two first days, it is very common for the blood to re-appear from time to time during the first weeks, and even the whole month; which proceeds from the weakness of the uterine vessels, and the preternatural size which some of them still retain.

1037. The source of these different kinds of discharge sometimes seems to dry up from the second to the third day, but for twenty-four hours only, or thereabouts. The *lochia* seem then to return into the blood, and to be translated

lated to the breasts ; and a crisis, more or less violent, is produced, which is called the milk fever.

1038. This crisis is announced by shooting pains in the breasts : a swelling and tension soon after succeed ; and their volume insensibly augments, to that degree in some women, that the skin seems to be in danger of bursting. The *engorgement* often extends to the *axillæ*, and sometimes renders respiration difficult and laborious. The pulse during this time becomes strong and quick, the head grows heavy, the face red, the woman suffers a kind of universal lassitude, and feels pricking pains all over the body.

1039. A sweat, more or less abundant, and whose sour smell sufficiently denotes its milky nature, at length always restores a calm. It often continues twenty-four hours, or even longer, with very short intervals. We ought to do nothing that may disturb it ; and it might be equally disadvantageous to endeavour to provoke it by loading the woman with blankets, or by giving her those heating potions, against the use of which I have already explained myself. All we ought to do is, to
favour

favour this evacuation when we find nature disposed to it.

1040. The suppression of the *lochia*, during this crisis, is so natural a consequence of it, that we ought never to be uneasy about it. The discharge returns of itself when the sweats become less abundant; and the *lochia* then resemble a milky or purulent matter, which afterwards acquires more or less consistence.

1041. At the end of the fourth day the swelling of the breasts usually begins to lessen; either because they empty themselves by the nipples; or because the *lochia* re-appear, or become more abundant; or because a part of the milk has been carried off by sweat.

1042. We cannot fix with certainty the duration of the latter *lochia*, because the milky humour which constitutes it often mixes in the sequel with the *fluor albus*, to which great numbers of women are subject; and it is not very easy to distinguish those two species of discharge. The milky *lochia* sometimes flow during a month, sometimes longer, but rarely cease sooner. The accidental suppression of this discharge, as well as of the red *lochia*, may become the cause of a great number of accidents,

as

as various in their nature, as in their violence and effects. The description of all these accidents cannot enter into the plan of this work, but properly belong to a treatise on puerperal diseases.

1043. Women who give suck, free themselves from the greater part of these accidents, and even from the other subsequent symptoms usual in those who do not : at least those symptoms are of shorter duration. They are seldom attacked by the milk fever which I have just described ; because they transmit to the child from time to time the redundant fluid which causes it. They sweat less abundantly than other women ; their breasts do not swell so much ; the *lochia* flow not so long ; and if that evacuation is suspended on the third day, it often afterwards returns in very small quantity.

1044. It is in this double point of view that I shall consider women in the puerperal state, in order to determine the mode of governing them, and what regimen will be best adapted to their condition.

SECTION IV.

Of the Regimen for Women in the Month.

1045. REGIMEN extends not only to the aliments, but to every thing which relates to the *non-naturals*, whose influence on the animal œconomy is never more sensibly felt than at this time.

1046. Nothing is of greater importance than the quality of the air: the example of epidemics, which so often exert their fury in large hospitals, where poverty crowds so many women together, proves how important it is that that fluid should be pure, and free from corruption. The putrid *miasmata* with which it is loaded in those places, are not the only things which may injure its salubrity; the *corpuscles* exhaled from flowers, such as the rose or jessamine, and other odoriferous substances, have sometimes occasioned disagreeable accidents to women at other times sufficiently accustomed to those odours.

1047. An air too hot, or too cold, is not less hurtful to women newly delivered, than that which is loaded with the heterogeneous particles

cles I have just mentioned. It is very essential that the chamber they are in should be well situated, and capable of being well opened, in order to renew the air from time to time, and warm or cool it, as occasion may require.

1048. The woman ought to receive no more visits on the first days than are absolutely indispensable. She ought to be lightly covered in bed, except it be in winter; having more regard to the season and the habits of the woman, than to the puerperal state. The curtains of the bed ought never to be close, unless while the windows and doors are opened to renew the air.

1049. The chamber ought to be as far as possible from noise, and no more talking allowed in it than necessary, that the woman may rest quietly, and not be waked with a start, nor incommoded by the noise and shaking of carriages, which is too much the case in great cities. The chamber ought moreover to have but little light by day, and only one candle at night, which should be kept from the eyes of the woman.

1050. We ought not to oblige women newly delivered to continue constantly in the same position, and remain on the back the first

twenty-four hours, as is but too often recommended to them : nothing being more capable of relieving them after the fatigue of labour, than the liberty of moving their limbs, and changing their attitude, they ought not to be hindered from doing it, except after a flooding, or when there is some reason to fear that accident. If nothing of that kind is to be dreaded, they may lie sometimes on one side, and sometimes on the other ; or even sit up a little, if their strength will permit it.

1051. Strong passions being not less to be feared in the puerperal state, than immoderate motion of the body, we ought to inspire her with none but what are gentle and agreeable, and keep every thing from her that may cause any agitation. I have known some who have been victims of an impulse of joy ; and others struck with an apoplexy and mortal convulsions by a fright ; and some who have sunk in a few minutes under the regret of seeing the child carried away by the nurse they had provided for it.

1052. Nothing is more conformable to the intentions of Nature, than to favour the evacuations by which she endeavours to rid herself of the milky humour with which she is overloaded.

overloaded. To excite or maintain that of the bowels, we may order an emollient glyster every day, or even two, if the woman should be troubled with the colic. We ought not to dispense with them, except at the time of the crisis and copious sweats which I have already mentioned. They may be continued after this epoch, and now and then rendered more laxative, by the addition of three or four ounces of honey, or of *mel mercurialis*, or something more active, if the case require it.

1053. The discharge of urine, and the moisture of the skin, may be kept up by drinking plentifully of barley-water, or a decoction of dog-grass with a little liquorice; a light infusion of the flowers of linden, camomile, matricaria, elder, or other things of that kind. Common water, almost cold, with a little syrup of capillaire, or of marsh-mallows, ought to be the ordinary drink of those who cannot take the others.

1054. These drinks also favour the discharge of the *lochia*, and are almost always sufficient to recal them when they are suppressed; an *engorgement*, an *erethismos*, or an inflammation of the *uterus* being generally the cause of that suppression.

1055. We are very rarely obliged to have recourse to infusions of mugwort, rue, saffron, &c. nor to any of those heating potions still so frequently given to the wives of the common people, abandoned to the care of a nurse, or of one of their neighbours: hot wine with spices is not less dangerous. When the suppression of the *lochia* arises from one of the causes indicated above, emollients & diluents are the only proper remedies.

1056. Those drinks and heating potions are however useful in some cases where there is more weakness than astringency in the vessels of the *uterus*: but as it often happens, when we prescribe a light infusion, that the women substitute a strong decoction of the plants ordered them, of which I have several times been a witness, the accoucheur ought to explain himself clearly on this subject, and determine the quantity proper for a quart of drink.

1057. The quantity and nature of the aliments which a woman newly delivered ought to take, must be determined by circumstances. According to some, we cannot keep women who do not suckle to too strict a diet; but that little alteration need be made in the way of living of those who perform that important duty.

duty. Such vague precepts may be equally pernicious in both cases.

1058. We are often obliged to allow a free diet to the former, and keep the latter very strictly; because their habits have been different, &c. I have often thought it necessary to prescribe food to some women, accustomed to eat much, in order to calm symptoms, which in others would have required abstinence.

1059. When nothing extraordinary happens after delivery, we may without fear allow the woman two little basons of broth a day, or even three; with rice, or otherwise: or a little soup with a crust of bread. Though it is necessary to deprive her of the broth during the continuance of the milk fever, we may afterwards add a little chicken or other solid food, and a little good wine mixed with water, according to her taste.

1060. The day of the milk fever we must keep the patient to thin gruel, and make her drink abundantly; in order to furnish a proper vehicle for the milky humour, and restore the serum to the blood, which it has been deprived of by the sweats which break out at that time.

1061. Some women are scarcely delivered before they apply cloths dipped in wine and oil to the *vulva*, to allay the pain and irritation which they suffer in that part; afterwards, they lay aside the oil, and use only the wine, in which some of them boil roses, and even things more astringent. These latter lotions are never more usefully employed than by women subject to a relaxation of the *vagina*, a descent of the *uterus*, or in whom the *symphyses* of the *pelvis*, softened during pregnancy, retain too much mobility after delivery: but we ought to be careful not to employ them inconsiderately at the beginning. Emollient, softening, and relaxing lotions are the only ones proper at that time.

1062. These latter are commonly made of milk with a little chervil boiled in it. Or we may substitute a decoction of marsh-mallows, agrimony, or barley.

1063. In many cases, it is not less useful to foment the belly, during the first days, with flannels wrung out of hot water, milk, or a decoction of emollient plants; in order to keep it soft, and favour the depletion of the *uterus*, which some degree of *erethismos* renders more difficult in many women.

1064. The

1064. The *sal de duobus* is too frequently given to women in the month, to be passed over in silence. It seems consecrated to their use, and every matron thinks herself at liberty to prescribe it, as soon as the milk fever is over. It is not however an indifferent medicine; many women are not able to bear it, even in a small dose. Though there may be a few cases where it is really indicated, there are a much greater number where we may do without it.

1065. 'Tis also custom, rather than reason, and the good of the woman, which has fixed the time for changing the shift and other parts of the lying-in dress: except the cloths that receive the lochia, which are changed often, that favour is not granted to the woman till the seventh, or ninth day. But why should she be left thus, as it were, immersed in excrement, when no state can require more care and cleanliness than the puerperal?

1066. I am of opinion that women may change their linen much sooner, and as often as it is moist with sweat, or otherwise; provided that what is substituted be very dry, and properly warmed. They may also from the first days be carefully moved into their little bed, while their own is made, and the sheets changed

changed if necessary. But they ought to avoid walking as long as possible, and never attempt it in the first eight or ten days, even after an easy labour. By observing this precaution, they will be less exposed to a relaxation of the *vagina*, a descent of the *uterus*, and other inconveniences which are the consequence of those.

1067. The greater part of valetudinarian women attributing the loss of their health to their milk, and often without any regard to the number of years which have rolled away since they had a child, imagine that others cannot be purged too early in the month. Some will have it be on the ninth day, others later, and not till the return of the *menfes*. I do not declare against the use of purgatives; I shall only observe that they should not be abused in the first periods, and that the proper time of administering them depends on circumstances which always escape the notice of the best nurses, and can only be pointed out by professors of the art.

P A R T III.

*Labours of the second Order, commonly called
preternatural.*

C H A P. I.

1068. **I**T is pretty generally agreed to call those labours preternatural, in which the child presents any other part but the crown of the head to the orifice of the *uterus*; because it was falsely imagined that in that case it could not be born without assistance. I have already observed that among those parts there are several, as the feet, the knees, and the breech, whose presence not only does not always render the labour essentially preternatural, but not always more difficult, or more subject to accidents, than that where the child presents the crown of the head.

1069. Among the labours which Nature cannot perform alone, or not without extreme danger to the mother or the child, there are
many

many which only require the application of a skilful hand ; and others which cannot be terminated without the help of instruments. I shall treat of the latter class, in the fourth part of the work ; in this, I shall confine myself to the former.

1070. These labours are so rare, that it seems impossible to fix the proportion between them and natural ones : but they will appear extremely various, if we consider the great number of regions which the child may present to the orifice of the *uterus*, and the circumstances which may require assistance. As a labour which begins with the most favourable appearances may become preternatural, on account of those same circumstances, which I shall consider as so many accidents, there is no region of the child's surface, which may not constitute some species of it, and come within the plan which I have laid down.

1071. Among these various regions, some present more frequently than others, and some so rarely that it will seem perhaps that I ought to have passed them over in silence : but as, on that account, they are more difficult to distinguish by the touch, and require more care
and

and attention, I thought it necessary to treat of them also.

1072. I shall divide this order of labours into almost as many species* as anatomists have distinguished regions on the child's body. As in most of these cases we are obliged to turn the child and bring it by the feet, the labours where those parts present naturally to the orifice of the *uterus*, will constitute the first species: the presence of the knees and the breech will characterize the second and third; because those labours very much resemble the first. As to the exposition of the others, I shall have less regard to their relation to these, than to the order in which the different regions of the child's surface present after each other; but after having stated the characteristics of each of these species of labour, in what they differ from each other, and the particular indications which they prescribe relatively to the mode of operating, I shall refer to those which have been previously described.

1073. Each species of labour which I shall

* As the word genus (*genre*), often made use of in the first edition, has displeased certain critics, as much enemies to order and precision, as ignorant of the science of midwifery, I have suppressed it in this.

distinguish, will comprehend several others, which will be deduced from the different positions that the presenting part is susceptible of, at the entrance of the *pelvis*.

A R T I C L E I.

Of the Causes which may render Labour preternatural.

1074. A LABOUR may be essentially preternatural, or become so accidentally. In the first case, it is always the bad situation of the child which is the cause of it; in the second, a variety of circumstances may complicate it, which I consider as so many accidents.

1075. In order to have a just idea of what is to be here understood by a bad position of the child, we must recollect what has been already said of its dimensions, and of those of the woman's *pelvis*; and remember that it cannot be born without presenting to the orifice of the *uterus* one of the extremities of its largest diameter, or of the oval figure in which it is naturally folded. Its situation is then essentially bad, whenever it does not present the crown of
the

the head, the feet, the knees, or the breech. If there are cases where the child may be born without help, though it presents neither of these parts, they can only be considered as exceptions to the general rule, and cannot happen except when the child is very small relatively to the *pelvis* of the mother.

1076. As the situation of the child is not absolutely fixed before the waters are discharged, and as it may change continually till then, especially when that fluid is abundant, and parts very distant present successively to the orifice of the *uterus*, the accoucheur ought not to pronounce his diagnostic, till it is evacuated. I have several times seen such changes of position in the course of almost a common labour; and it was no doubt on account of similar observations, that some practitioners, particularly among the ancients, have advised us to make the woman place herself in different attitudes, often as whimsical as inconvenient and dangerous, in order to procure a more favourable one for the child.

1077. When several parts present successively to the orifice of the *uterus*, if at any time we find the head there, we ought instantly to pierce the membranes, and discharge the waters,

ters, in order to fix it, and prevent the return of a bad position : we ought not, in that case, to wait till the orifice of the *uterus* be completely dilated ; if the labour be pretty strong, it is sufficient. But whatever may be the degree of dilatation in the orifice, if the child presents any other part to it but the head, we must defer the evacuation of that fluid, which gives it such a freedom of motion, to see if the position will not change for the better ; always, however, proportioning that delay to the nature of the circumstances which may complicate the labour. With these precautions, a labour which would have been preternatural, may sometimes terminate without farther assistance*.

1078. Among the causes of preternatural labour in general, none is more justly so called, than a deformity of the *pelvis*. It seems indeed rather to belong to the third order of labours than to the second ; since in that case the hand alone is seldom sufficient to deliver the woman ; except the deformity be very slight. Therefore I shall not enter fully into the dis-

* Experience has so fully convinced me of the truth of what I have advanced on this point, that I could not but have a disadvantageous opinion of any who should contest it.

cussion of it, till I come to the fourth part of the work.

1079. The accidents which do not permit us to abandon the labour to Nature, either because it would endanger the life of the mother, or of the child, and often both; or because it absolutely cannot be performed without help, are an hæmorrhage, convulsions, and frequent faintings or *syncope*s; an exhaustment of the woman's strength, a lingering or cessation of the pains, the existence of an irreducible hernia, with a disposition to strangulation; sometimes the obliquity of the *uterus*, or the contraction of its neck round that of the child; at other times the presence of several children, who reciprocally prevent each other's exit; the issue of the umbilical cord, its shortness, and its being twisted round the child's neck, if we adopt the common opinion on that subject; and many other causes besides, which will be stated in the latter part of the work.

SECTION I.

Of Hæmorrhage, considered with respect to the Necessity of immediate Delivery.

1080. THE hæmorrhage known by the name of flooding is not the only one which may endanger the lives of both mother and child during pregnancy and labour; that where the blood flows abundantly from the nose or mouth may have consequences equally disagreeable, and seems to demand the same succours.

1081. One is always the consequence of an accidental separation of a portion of the *placenta* from the *uterus*, and may happen at any period of pregnancy; the remote cause of the other is often nothing more than the pressure exerted on the vessels of the *abdomen* by the distended *uterus*. As that pressure, strong enough of itself in some cases to cause an *engorgement* of the vessels of the breast and head, a spitting of blood, and a bleeding at the nose, becomes much more so, if the woman should make any straining efforts when she is tight laced,

laced*, and especially when she assists the labour pains by bearing down vigorously, so it is in those circumstances that it generally happens.

1082. This species of hæmorrhage is always apparent; but the former is not constantly so, and the blood, instead of being shed without, is sometimes extravasated behind the *placenta*, and retained there by the strong adhesions of its edge to the *uterus*, sometimes by those of the membranes, and sometimes by the natural contraction of the neck of the *uterus* itself, which is not yet open at the time when the extravasation takes place; which establishes two species of uterine hæmorrhage, one apparent, the

* A woman of a very strong constitution, eight months gone with her first child, after a little slight straining, discharged blood copiously by the mouth, and lost more than twenty porringers in the space of two days: she remained languishing till the time of her delivery, which did not happen till the usual period; she had however no troublesome symptoms afterwards.

Another woman, eighteen years old, and rather of a delicate constitution, only three months gone, who had already symptoms of a plethora, for which I had prescribed bleeding, having laced herself too tight, was instantly seized with an hæmorrhage at the nose, which nothing could stop so as to prevent its return, till the fifth month and an half, when, being quite exhausted, she died.

other concealed. All authors have made this distinction; but the concealed hæmorrhage has not appeared to them to merit attention, except when it happens after delivery.

1083. Though the structure of the *uterus*, and the resistance which its *parietes* oppose to the agents of its development, seem to favour the opinion that much blood cannot be extravasated behind the *placenta*, experience does not coincide with that opinion, but has several times proved to me that this sort of extravasation might become so considerable as manifestly to affect the strength of the woman and the life of the child *. Besides, the dyke, which retains

* There was an extravasation of this kind in Madame de **, after being bled in the arm, which had occasioned frequent *syncope*s; and the symptoms, stated in par. 1085 and 1086, appeared almost immediately. The pains continued during three weeks, becoming stronger every day; and this lady was delivered of a dead child, at the period of eight months. There were behind the *placenta* two clots of blackish blood, solid, and in a manner dried, of the size of a duck's egg each.

In another woman, the *coagulum*, which covered two-thirds of the *placenta*, was as large as the *placenta* itself; and in a third, I estimated it at four or five porringers: they were each of them delivered of a dead child, after having suffered most of the symptoms described in the paragraphs indicated.

retains the blood thus, must be broke through sooner or later ; the hæmorrhage then becomes
apparent,

indicated. The extravasation became more considerable, and the consequences of it were more fatal in another woman, which the limits of this work will not permit me to relate at large. This woman, after a long walk, felt some dull pains towards the *fundus* of the *uterus*, and the loins, which continued all night, and which she compared to those which had been used to precede the *menfes*. Having got up the next day as usual, great and frequent faintings, and the fear of a violent flooding, upon seeing a little watery blood appear, obliged her to go to bed again a few hours afterwards : it was about ten o'clock in the morning. Her weakness and exhaustion, the *syncofes* which were continually repeated, and the paleness and alteration of her countenance, not being accountable from the small quantity of blood she had evacuated, for there appeared scarcely a porringer full, besides a few cloths slightly tinged with it, made me suspect an internal extravasation : the rapid augmentation of the volume of the *uterus* since the evening, by the account of the woman and the family, strengthened that suspicion, and new symptoms soon confirmed it. About seven months advanced in her pregnancy, and scarcely shewing it before this accident, the *uterus* was so developed, as to make any one, at first sight, suppose her at full time, and pregnant of two children rather than one. The expulsive action of the *uterus* manifested itself about the time of my arrival, and the orifice began to dilate. It was scarcely open before the pains, though weak, expelled a quantity of clots, black and soft, more than the crown of a man's hat could hold. The blood continuing to flow afterwards, the danger augmenting, and the little hope

apparent, and a fresh loss of blood which the vessels pour out plentifully, increases the danger which already existed from the former.

1084. It is not only in the species of accidental *capsula* which I have just mentioned, that extravasations of blood may be formed during pregnancy; they may also take place in the cavity of the membranes which envelop the child: but from a different source. *M. Levret* relates an example of it, from a rupture of the umbilical cord*; and de la Motte, whom we cannot suspect either of falsehood or ignorance, assures us that he has seen the blood flow through the meshes of the coats of the vein which makes part of the cord, in a place where it was become varicous†.

From the testimony of my own senses, I can assert that the cord may be ruptured or torn of preserving the woman by deferring the delivery, determined me to perform it. I executed it in presence of two surgeons, who were sent for before me: but it was without success; the child having scarcely survived it an instant, and the woman having died five hours afterwards, in a paroxysm of *syncope* and hysteries, which nothing could prevent or moderate.

* *Levret*, Suite de ses Observ. sur la Cause de plusieurs Accouchemens Laborieux, obs. 35^{me}, page 199, edit 4^{me}.

† *Observ.* 249, nouv. edit. tome ii. page 725.

partially before the birth of the child, and shed a great deal of blood into the cavity of the membranes *.

1085. The

* A woman at full time, lifting her leg to get into a bathing tub whose edge was very high, felt a painful twitching towards the loins, and in a few minutes lost more than a porringer of blood: it was on the 11th of August 1787. She afterwards passed forty-eight hours in bed, in the strictest repose, and the flooding did not re-appear: but during that time she grew very pale and weak, and the *uterus* evidently acquired a more considerable volume. After this the flooding came on again, and at the same time the true pains of labour. The weak state in which I found this woman at my arrival, the small quantity of blood which she had lost, and the increase of the *uterus* since the time of the first flooding, did not permit me to doubt that there was an internal extravasation. I acquainted her husband of the nature of the case; I did not conceal the danger she was in; I informed him we should be obliged to deliver her immediately; I desired another accoucheur might be sent for; but I could only obtain the physician and friend of the family, who was a witness of what I am going to relate. The labour was scarcely begun; and the action of the *uterus*, still weak, at every effort expelled only a little fluid blood, and very serous. By the time the orifice was open the breadth of a half crown, the pains having acquired some strength, there were discharged large blackish clots, soft, and in a manner putrid, which could not have been formed in the *vagina* where I then had my finger: this occasioned several *syncopes*. The edge of the orifice of the uterus being very soft, and being sure likewise that the child presented in a bad position, I opened the membranes. After the waters, which were

1085. The diagnostic of these extravasations is not so easy as that of common floodings : the latter cannot be mistaken ; but the former may remain a long time doubtful, unless it increase very

bloody, a greater quantity of clots, larger and softer than the preceding, were expelled, and appeared to me to come evidently from the cavity of the membranes. A more alarming *syncope* than the others, followed by a convulsion, made me fear the woman would die before I could deliver her. The child presenting the loins, the breech resting on the left side of the *pelvis*, I had no trouble in bringing down the feet, nor in extracting it. Perceiving at the instant the breech appeared, that the umbilical cord, which passed between the thighs and mounted along the back, was moderately tight, I passed a finger under, in order to bring down a loop of it : I was exceedingly surprised to see it ruptured a few inches higher, and fall down before I had made the smallest effort to disengage it. We saw clearly, the physician and I, that the vein had been ruptured some time, that its extremity was stopped up by a clot, and that the arteries appeared to have been torn more recently, as well as a very small venous branch. After the exit of the *after-birth*, we remarked that the rupture had taken place at the insertion of the cord, and that the end of the trunk of the vein and its principal divisions were obstructed by coagulated blood.

The child was living, but weak and discoloured : it was saved. It had two turns of the cord round the neck. The mother had very alarming subsequent symptoms, and was attacked on the fourth day by a crystalline miliary eruption. Her convalescence seemed to begin about the eighteenth or twentieth day, when I left off seeing her constantly : but I afterwards

very suddenly. A dull deep-seated pain, accompanied by a sensation of weight in the place where the extravasation is made, manifests itself almost at the instant of its commencement, and augments insensibly with it. The region of the *uterus* under which this collection is formed, rises in proportion to its quantity, and the whole body of that *viscus* is manifestly developed in a short time, beyond what it usually is in a month or even two of pregnancy.

1086. The extravasation cannot become considerable enough to produce such changes in the volume of the *uterus*, without strongly exciting its expulsive action ; nor is it long before pains are felt similar to those of labour, and labour is soon the consequence of them. Those pains, which are signs of the contractions of the *uterus*, driving the blood forward, we see clots come out as soon as the orifice is sufficiently open, if the extravasation has been made behind the *placenta* ; but not till the opening of the membranes, when the collection has been afterwards learned that she died on the fortieth day, of accidents which supervened secondarily.

I estimated the quantity of clots which she discharged before delivery, and during the course of it, at as much as two common hats could contain. I never saw any one lose so much without sinking under it immediately.

formed

formed within their cavity : in the latter case, the waters which precede the clots are tinged with red.

1087. The necessity of delivery, without any regard to the period of gestation, when the flux of blood is so copious as to endanger the lives of the mother and child, has been acknowledged for two centuries back ; and the precept is so much considered as a law among us, that we could not act otherwise without being taxed with ignorance. This practice, founded on the theory of the cessation of floodings after delivery, is confirmed by a great number of observations. A long and too fatal experience has equally proved, that an hour's, and even a moment's delay has in many cases cost the lives of both mother and child.

1088. Though we cannot dispense with delivery, it is not less important to proceed to it in the gentlest and most advantageous manner. The conduct to be pursued must be guided by the intensity of the flooding, and the time when it manifests itself with violence. Sometimes it begins and becomes abundant, while the neck of the *uterus* retains all its natural thickness and firmness, and the orifice, scarcely begun to open, will with difficulty admit

mit the finger ; at other times, it does not happen till later, when the parts are already prepared for delivery, or when the labour is begun, and even considerably advanced.

1089. In the former case, whatever abundance of blood the woman may lose, nothing could justify the conduct of the accoucheur who should persist in endeavouring to deliver without delay. He ought to content himself with checking or moderating the hæmorrhage by the application of cold and stimulating liquors to the belly and thighs of the woman ; and especially by stopping up the *vagina*, and the neck of the *uterus* if he can. If he obtains no advantage by these means, he must excite the labour pains, by gently stretching the edge of the orifice of the *uterus*, and making strong frictions on the belly, either with the hand, or with a hot napkin. If the flooding continues notwithstanding these aids, he must open the membranes, that the *uterus* may close on the child ; and continue to excite the pains till the labour be well established.

1090. When the flooding diminishes in proportion as the pains augment, we may leave the expulsion of the child to the care of Nature ; but if it continues so long as to weaken the
woman,

woman, the child ought to be extracted. We may then gradually dilate the neck of the *uterus*, by introducing the fingers successively, and remove the child's head, if that presents, and turn it and bring it by the feet.

1091. When the pressing danger which arises from the flooding does not appear till the child's head occupies the cavity of the *pelvis*, we ought to prefer the forceps: supposing the accoucheur has them at hand; for the accident is too serious to allow him time to send for them. Otherwise he may still push back the head, though pretty far advanced, and search for the feet. See par. 1292 and following.

1092. The danger being the same in all cases of violent flooding, whether the blood flows freely without, or is extravasated within, we must proceed in this manner; because the open or ruptured vessels cannot cease to pour out the blood, till the contraction of the *uterus* shall have determined a sufficient change in their direction and diameters, to hinder it from passing easily through them. See par. 555 and following.

1093. The precept of immediate delivery in case of a violent hæmorrhage from the nose, or mouth,

mouth, cannot be so generally admitted at all periods of gestation, as in those of flooding; even if it should be certain that the strong pressure of the *uterus* on the abdominal vessels was the determining cause of that hæmorrhage, as I have observed in par. 1081: but I do not hesitate to recommend it, when that accident happens during the efforts of labour; for it would be as unskilful to expose the woman to a long continuance of those efforts, or not to deliver her, as to suffer her to sink under a common flooding.

1094. There are other cases where it is not less important to perform the delivery than in the preceding, if it cannot be terminated naturally without long continued efforts on the part of the woman; such as deep-seated *aneurisms*, as of the *aorta*, the *carotids* and the *subclavian arteries*, as I have met with in several women: but then it is to prevent a mortal hæmorrhage, and not to remedy it.

S E C T I O N II.

Of Convulsions, considered particularly with respect to Labour and Delivery.

1095. THERE is no woman who may not be seized with convulsions during pregnancy and labour, the causes of them are so numerous: but there are some women in whom they seem so to depend on that state, that they are repeated every time they become pregnant, or are in labour.

1096. In some cases, the convulsions are constitutional, and we know no more of their cause, than of the means of curing them without return. They attack during pregnancy, as in the natural state, and each paroxysm leaves no other consequences than what they did before the woman was pregnant. In other cases, the convulsions are only symptomatic or accidental, and the remote causes of them are not so impenetrable as those of the former.

1097. This species of convulsions may depend on great and sudden emotions of the mind, on a sanguine plethora, or on an excessive flooding, on a fulness of the *primæ viæ*, on an extreme sensibility of the uterine fibres, a
 4 violent

violent distention of the edge of the orifice of the *uterus*, and of the parts which form the entrance of the *pudendum*, on a rupture of the body of the *uterus*, and, according to some authors, on the excessive dilatation of the cavity of that *viscus*, which however is not founded on any incontestable fact.

1098. As the time of labour is that period of pregnancy when these causes are united in the greatest number, it is also that when women are ofteneft seized with convulsions. The uterine fibre is not, in fact, so sensible, nor so irritable, in any period of pregnancy, as in that of labour: those two properties, inherent in the muscular fibre, seem at that time to increase in proportion to the force which the *uterus* must exert to overcome the obstacles which oppose the expulsion of the child. It is the time when the blood is driven with the greatest impetuosity towards the brain, because it is that when the *uterus*, closely embraced by the abdominal muscles, makes the strongest pressure on the inferior *aorta*: it is the time when that fluid is most rarefied, that in which there is the greatest disturbance and agitation in the animal œconomy, on account of the violence and frequency of the pains, &c. From the state of perturbation
which

which we observe in most women when the force of labour is at its greatest height, especially in a first labour, to a state of convulsions, the passage is short and rapid.

1099. The concurrence of all these causes is not necessary to produce convulsions; a single one is sufficient. As all those which I have mentioned may act separately, and at different periods of pregnancy, the woman may be attacked by convulsions at any time of it. There are cases, in which the convulsion adds to the cause which produced it, so that a first paroxysm brings on a second, &c. and there are others where the cause seems to be extinguished with its effect, so that the convulsion appears no more.

1100. As there are cases where the convulsion is only momentary, so there are others where it becomes periodical, and in which the paroxysm is very long. *M. Levret* mentions a woman in whom this paroxysm was repeated every day at the same hour, and towards the latter end of pregnancy lasted eighteen hours out of four and twenty *. I have delivered one, who suffered convulsions periodically every month, during three successive pregnancies :

* *Levret, Essai sur l'Abus des Règles générales, &c. page 15.*
they

they seized her at the time when the menses used to appear, and attacked her twelve successive days in each month of the first pregnancy, augmenting at each paroxysm, till they lasted three hours and an half towards the middle of the day, and three hours and an half in the evening. They returned also periodically in the two next pregnancies, but they lasted a shorter time, and were not so strong; because we found the way to calm, and even prevent them *. Convulsions of a different kind were so exactly periodical for four days, in another woman, that there was not a minute's difference in the commencement and duration of each paroxysm †.

1101. All convulsions are not of the same nature, nor affect the same organs, nor equally disturb the harmony of the functions. Sometimes they present a frightful spectacle; agitating all the muscles, even those reservoirs, or organs, which we look on as so many hollow muscles. At other times, the countenance is tranquil during the paroxysm, and the convulsion affects only the large muscles, as those of the *trunk* and extremities.

* See the note on par. 1106.

† These interesting observations cannot have a place here on account of their length.

1102. In the former case, the eye of the spectator can scarcely follow the motion of the woman's eyes, the agitation of the muscles of the face, the neck, the *trunk* and extremities; the jaws are locked, and she grinds her teeth; the mouth is covered with froth, and the nostrils throw it out likewise; respiration is quick, irregular, and loud; sometimes also there is an ejection of the urine and *fæces*. A stiffness of the body and limbs succeeds this convulsive agitation, and the woman remains immovable during a longer or shorter time. The respiration, though more tranquil then, continues loud; the face remains swelled and very red; the jugular veins appear very large, and the pulsation of the *carotids* is very strong. Sometimes the understanding does not return for several hours, and even days, after these convulsions; and the loss of memory, sight, and of hearing, continues still longer. I have seen women who had no remembrance of their pregnancy more than a week after the convulsions, having been delivered in one of the fits; in others the light has made no impression on the eye, nor could the ear be affected by any sounds, during three or four days.

1103. When the convulsion affects only the
muscles

muscles which serve for the animal functions, and especially the large muscles, it scarcely causes the slightest alteration in the woman's countenance. If her colour heightens a little during the paroxysm, she soon grows pale again; if she loses her understanding, it presently returns, or, if it does not return, the state in which she remains after the fit rather resembles natural sleep than that comatose state just mentioned; and when she revives she will often continue the conversation which the convulsion had interrupted.

1104. These different species of convulsions are not equally troublesome, nor do they equally disturb the progress of gestation, and the mechanism of labour, nor do they require the same treatment. It is very rare that they do not bring on the pains of labour, at whatever period of pregnancy they happen, when they are of the species described in par. 1102; but they bring them on the more certainly, as pregnancy is farther advanced. Whatever method we may take against these convulsions, we cannot save all the women who are seized with them, and some must sink under them. It is not the same with those described in par. 1103; they rarely disturb the progress of gestation, or happen in

the course of labour, however frequent they may have been before. Delivery took place but fifteen days before the usual time, in the woman who is the subject of *M. Levret's* observation ; and in her whom I have mentioned in the note on par. 1106, it wanted but three or four days of the period of the tenth revolution of the *menfes*, when she was delivered of her first child. Yet the convulsions in the latter were constantly excessively strong ; and in several of the paroxysms in which I saw her in the eighth month, the trunk was so bent backward, that her head and feet resting on the bed, touched each other ; which was repeated more than ten times during the paroxysm, and with a rapidity which the eye could not follow.

1105. Though convulsions sometimes attack without any precursive symptoms, they are generally preceded by a lassitude and a starting of the limbs, oppression and anxiety, a heaviness or pains in the head, giddiness and ringing in the ears, even a sudden blindness and deafness ; the mind seems disturbed, and the eye becomes wild, &c. Though these symptoms in some women only denote a nervous affection, or an hysterical state, they are almost always

always indications of a sanguine plethora; and in either case we may prevent the consequences.

1106. In some of these cases, we may usefully employ the warm bath, anti-spasmodics, and anti-hysterics, either to prevent or calm the violence of the convulsions: but nothing can supply the place of bleeding in those who have signs of a sanguine plethora, or when the convulsions have caused an *engorgement* of the brain. Authors are not perfectly agreed on the part where we ought to open the vein; some advise bleeding in the foot, others in the neck, but the greater part in the arm: it would be of great importance to fix the opinion of young practitioners on this point. I have seen convulsions of the kind described in par. 1102, yield to nothing but bleeding in the neck, after several bleedings in the foot; those mentioned in par. 1103 appear after a bleeding in the foot, and be constantly removed by bleeding at the arm*. There are circumstances in which evacuants
are

* The woman who is the subject of this observation, had convulsions of this species at the instant of a bleeding in the foot, which a suppression of the *menfes*, some years before marriage, had seemed to require. Being attacked with convulsions in the first month of pregnancy, eight or ten drops of the mineral anodyne liquor of *Hoffman*, taken in a spoonful of

are exclusively indicated: but I cannot state them here.

1107. Although the danger which arises from convulsions is as great in many cases, as orange flower water, rendered the fit longer by half than it had been the evening before; and a similar dose administered the next day, prolonged it as much more: so that from three quarters of an hour, which it was at first, it was lengthened to an hour and three quarters, and afterwards to three hours and an half, both morning and evening; which continued in that manner, during twelve days of each month, till the end of pregnancy; notwithstanding the use of the warm bath four hours each day without interruption; diluting drinks, &c.

The second and third pregnancies would have been equally stormy, had she not been bled at the arm. The convulsions appeared at the same periods, and seemed to follow the same course: but eighteen times taking away a single porringer of blood stopped their progress. If it was deferred twenty-four hours after the first attack in each month, the convulsions became very strong; done at the instant of its commencement, the paroxysm went off; at the time when the precursive symptoms announced it, it was prevented; so that it had constantly the same success, whether it was employed with a curative, or a preventive intention.

Bleeding at the arm was not less salutary in the same woman, since the third pregnancy, on account of convulsions proceeding from a suppression of the *menfes*. Recourse was not had to it till after the trial of many other methods which had augmented them, and they ceased immediately after that bleeding: it had the same success two following months. The convulsions have not appeared since, the *menfes* having been regular.

that which proceeds from an excessive flooding, yet we ought not to endeavour to bring on labour, as in the latter circumstance; because it would not be attended with the same success. Besides that convulsions do not always essentially depend on pregnancy, and that they often have other remote causes, which delivery cannot remove, the efforts necessary to overcome the obstacles which might oppose it, would not fail to aggravate them and render their consequences still more grievous. I except however those cases where they happen during the course of labour, and at a time when the parts of the woman are already well disposed for the passage of the child. When these natural dispositions do not exist, the violence which must be exerted to solicit the expulsive action of the *uterus*, to dilate its neck, and introduce the hand into it, to turn the child and extract it, would it not be a new cause of convulsions, which would increase the former, as well as the danger resulting from it? Will it be said that we may cut the neck of the *uterus*, in order to penetrate it more easily, as several accoucheurs have practised? This proposition, in such cases, could only pass for the effect of a fit of insanity.

1108. Those who have attributed the convulsions to an excessive distention of the uterine fibres in the last periods of pregnancy, of course knew no better mode of calming them, than to perform the delivery; and some have thought that evacuating the waters of the *amnion* would be sufficient to restore and properly relax those same fibres. Without admitting their opinion on the cause of convulsions, I allow that this practice has sometimes had the desired success; that there are really cases where it is proper to evacuate the waters of the *amnion*, others where we ought to extract the child, and even cut the neck of the *uterus*: but those cases are rare, and never are met with before the efforts of Nature have already begun the labour.

1109. By attentively observing what passes in cases of convulsions, we remark that they do not always interrupt the course of the labour pains, whether they had excited those pains, or the pains had preceded them. All authors relate examples of women who have been delivered without help after several fits of strong convulsions, and others while they were actually convulsed, whether there were lucid intervals between, or that the loss of understanding was permanent. The progress of labour in most of these cases

cases seems even more rapid than in others, since we have often found the child between its mother's thighs, though an instant before we could discover no disposition for delivery.

1110. The result of these observations is, that we ought not to be in haste to deliver, when Nature seems disposed to perform it herself, whatever may be the nature and force of the convulsions; that we ought never to attempt it in any case, if the labour is not already begun, because Nature, notwithstanding the disorder in her functions, can perform in a short time, what we could not obtain but with abundance of efforts and danger, besides that a calm may be restored, notwithstanding the number of convulsions which have taken place; that while we wait the favourable moment for operating, we should only employ those means which we could use after delivery if the convulsions should continue; lastly, that we may in many cases accuse those practitioners of too much precipitation, who have conducted themselves differently, instead of giving them credit for the success they flatter themselves they have obtained.

1111. The convulsions which only happen during labour, having often no other cause than the excess of pain, the extreme sensibility which
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the fibres of the *uterus* then acquire, the stretching which those of the neck of that *viscus* suffer when it opens with difficulty, as well as the external parts; the volume of the blood, augmented by the heat excited by continued efforts; the *engorgement* of the vessels of the brain, &c. seem to require different aids, and call for less delay in the delivery. If they continue, with loss of understanding, after a copious bleeding, we may open the membranes, in order to diminish the volume of the *uterus*, relax its fibre, calm the excess of its sensibility and irritability, which are then accidentally excited to that degree; and much more to weaken the pressure which that *viscus* exerts on the inferior *aorta*, and thus recal the blood in greater quantity into the vessels of the *abdomen* and the lower extremities. If the convulsions subsist with the same force after the administration of these succours, we may perform the delivery, unless it appears disposed to take place speedily.

1112. There are cases in which we cannot dispense with turning the child and extracting it by the feet; because it presents in such a manner, that it cannot be born without help, nor be extracted any other way: we ought then
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to proceed to it immediately after the evacuation of the waters, whether the convulsions subsist or not. There are other cases, where it would be better to extract it with the forceps, if we could procure them in time, and the distance of the head ought not to be a motive for excluding that instrument, except when the hand, obliged to direct it in this pressing circumstance, is not sufficiently experienced. There are some in which the head is so engaged at the time when the danger of deferring delivery appears, that there is no longer any option between those two methods, the application of the forceps being the only one indicated; except when the child is dead, for then we may substitute the crotchet. Lastly, there are some where we are obliged to cut the edge of the orifice of the *uterus*, the fibres of which cannot extend beyond what they have done before, nor tear; whether because they are too dry and too rigid, as we observe particularly in women advanced in age when they are in labour of their first child *, or because that part of the *uterus* is hard and scirrhus. But these

* M. Dubosc, professor in the College of Surgery of Toulouse, communicated to the Royal Academy of Surgery, in 1781,

these cases are very different from those for which I have rejected even the idea of such an operation.

S E C T I O N III.

Of Syncope, of the Exhaustment of the Woman's Strength, and other Causes stated in Par. 1079; and particularly of the Exit of the Umbilical Cord.

1113. *Syncope*, or faintings, if frequently repeated in the course of labour, although we

one of the most interesting observations on this subject. We there remark that the preservation of the woman was the fruit of the section of the edge of the orifice of the *uterus*. This woman, being about forty years old, and big of her first child, had been in strong labour three days, and suffered convulsions from the second; her person could not be known, says M. *Dubosc*, and was frightfully pale; her pulse weak and almost extinct, as well as her voice; her eyes, hollow and dull, appeared dying, a clammy sweat covered her whole body, and her extremities were cold; she was senseless, and could not swallow a single drop; the edge of the orifice of the *uterus*, open the breadth of a crown, was hard, light, and in a manner callous. Delivery was performed spontaneously three or four minutes after the section of that part: the child was dead, but the mother immediately grew calm, and the subsequent symptoms were mild.

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may not be able precisely to determine the cause of them *, as well as a general weakness or exhaustion, which deprives the woman of the power of exerting sufficient efforts to expel the child, ought to engage us to deliver her, in order to prevent consequences often very disagreeable.

1114. That procedure is a thousand times preferable to the useless attempts which are made to quicken lingering pains, after a labour so long and so severe, that the *uterus* scarcely retains the power of contracting, or is in a state more or less disposed to inflammation.

1115. If the existence of an irreducible *hernia*, whether inguinal, or any other, does not always require us to perform the delivery, ex-

* One of those women who were delivered in my theatre, for the instruction of my pupils, in 1774, after violent convulsive agitations on the part of her child, at the beginning of labour, suffered frequent faintings, followed by an abundant vomiting and a copious *diarrhœa*, for two hours; and died about fifteen hours afterwards, in a third paroxysm of *syncope*, before she was delivered. On opening her body, we found a stone, of the size of a small walnut, in the gall-bladder; and the *omentum* collected in the form of a cord, strongly adhering to the inferior and right lateral part of the *uterus*, so that the stomach and the arch of the *colon* were dragged by it in a singular manner.

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110 CAUSES OF PRETERNATURAL LABOUR.

perience has taught us, that it is prudent at least to do it sometimes, in order to prevent its becoming more considerable by the exit of a new portion of intestine, and its being strangled in consequence of the efforts of the woman *.

1116. An obliquity of the *uterus*, though very common, so seldom renders delivery impossible without help, and it is in general so easy to correct that bad situation, and prevent its effects, that I should be unwilling to enumerate it among the causes of preternatural labour, if it were not necessary to excite the attention of young practitioners on this point, and demonstrate every thing to them which

* I was a witness of the fatal consequences of such an accident, towards the middle of November 1774. A loop of intestine, in the efforts of labour, had insinuated itself through a mass of the *omentum*, about the size of a hen's egg, which for nine years had formed an umbilical hernia, and was there strangled. The woman already suffered the symptoms of strangulation, when I was called; and those symptoms, much more than the apparent impossibility of her being delivered alone, determined me to deliver her. But we could not effect the reduction, not of the *omentum*, which had always appeared irreducible, but of the portion of intestine newly come out, and it was not thought proper to attempt the operation; so that the woman died the third day after delivery.

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may occasion those labours.—(See the section on the obliquity of the *uterus*, vol. i. par. 274, and following.)

1117. It happens much more rarely still that a contraction of the neck of the *uterus* on that of the child, opposes the descent of the shoulders so strongly, as to render delivery impossible without help. I have found by experience that it is sometimes the edge of the external orifice of the *uterus* which is thus contracted on the child's neck, but much more frequently the circle which, in the natural state, constitutes its internal orifice. In the former case, the head having cleared the orifice, is entirely in the *vagina*; in the second, it is still enveloped in the neck of the *uterus*, and the orifice surrounds it like a crown.

1118. If the obstacle, attributed to the contraction of the edge of the orifice of the *uterus* round the child's neck, were as frequent and as real as one might imagine from the reading of some authors, it would be an afflicting circumstance for many women, and still more for their children: for we cannot comprehend the mechanism by which this contraction obstructs delivery, without being obliged to confess that it is extremely difficult to remedy it, at least
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most frequently. The child's head occupying the cavity of the *pelvis*, does not permit us to insinuate the hand into it, to dilate the orifice of the *uterus* contracted round the neck; we cannot, without great inconveniences, push back the head above the superior *strait*, to procure that dilatation, and afterwards search for the feet *; and if we try to extract it with the forceps, the shoulders cannot follow without great difficulty †. The contraction of the internal orifice of the *uterus* on the child's neck, is observed more frequently than the preceding; though it may, in some cases, produce as great an obstacle to delivery, it is always easier to

* See par. 1210.

† I have been a witness of this circumstance but once; but I could quote several examples, which persons capable of forming a good judgment have communicated to me. The opening of the body of the woman, in some of these cases, has demonstrated that the contraction of the neck of the *uterus* alone obstructed delivery. In that case of which I was a witness, the child's head had occupied the bottom of the *pelvis* for sixty hours; it had been crushed with the forceps, and the crotchet, which was used afterwards, had only brought away some pieces of it. Instructed by the examples which had been communicated to me, and finding the volume of the head sufficiently diminished, I advanced my hand by the side of the base of the *cranium*, to dilate the neck of the *uterus*; I then turned the body of the child, and brought down the feet.

overcome it, and the same inconveniences do not result from it; because the head is not so far engaged, and may always be pushed back; which permits us to advance the hand under the uterine circle in question, and dilate it*.

1119. Experience has frequently proved, that the presence of a second child may produce obstacles to the birth of the first, insurmountable by the natural powers; either because they both tend to engage at the same time; or because their respective positions are such, that the *uterus* cannot act immediately enough on that which presents well, to expel it; as happens more remarkably, when one of them is placed across, and the other according to the axis of the *pelvis*†.

1120. The union of these children by means of some of their parts; vicious conformations, as two heads on one *trunk*, or two *trunks* to one head; a dropsy of the *abdomen*, or of the head, &c. are so many additional causes which

* I have met with this circumstance several times in the course of my practice, and have collected some interesting observations relative to it.

† See the article on twins, in the fourth part of this work.

render labour preternatural, difficult, or laborious *.

1121. The exit of the umbilical cord, brought along by the current of the waters at the time the membranes open, has always been considered as an accident very dangerous to the child; as well on account of the contact of the air, which cools the cord, and diminishes the motion of the blood in it; as of the compression which afterwards intercepts the course of that fluid through it.

1122. This accident is, without doubt, dangerous; but the precept of delivering instantly, by turning the child, would not be less if we were to give it indiscriminately for all cases where the cord falls down thus: for many a child has perished while it was extracted by the feet, which might have been born living, notwithstanding the exit of the cord, if the delivery had been left to Nature.

1123. We ought then to attempt nothing till we have well examined the course Nature is likely to take, and the effects the umbilical cord suffers; for often, after the discharge of the waters, which brought it out, the expul-

* See also the fourth part of the work.

sion of the child is quicker than its extraction could be; by following the too general precept we should, in all those cases, add a long compression of the cord, to the danger sometimes inseparable from turning the child, and bringing it by the feet.

1124. The umbilical cord does not, every time it precedes the child's head, and presents first, suffer so strong a pressure as to destroy the circulation in it; and we may keep the loop, which hangs without, from the contact of the air, not by wrapping it up in a cloth, as I have seen done, but by putting it back into the *vagina*. With this precaution, and that of placing the cord towards one of the sides of the superior *strait*, the compression which it suffered, in a woman confided to my care, was so weak, that I counted more than one hundred and fifteen pulsations in the umbilical arteries, during each minute, about two hours after its exit*.

* This observation was made in a case which cannot serve to establish a rule. The woman had but slight pains, and the form of her *pelvis* did not permit the child's head to engage in it. The child died ten or twelve hours after the exit of the cord; the woman not being willing to submit to the Cæsarean operation, which alone could have saved it.

1125. As long as the pulsations are free, if the child's head engages easily, we ought to wait, at least unless other reasons oblige us to act; for either the delivery will terminate happily, or the head will approach sufficiently to the external parts, to be easily extracted with the forceps, which is better in all these cases than to turn the child. The accoucheur is supposed to be provided with that instrument, for this circumstance will not always allow him time to send for it.

1126. The danger to the child, when the cord falls down, is never greater than when the mother's *pelvis* is a little narrow, because the pressure on the cord is then stronger. This circumstance, which seems to authorize us to follow the usual method, still increases the dangers which naturally attend it; for in this case the child's death is almost always certain, whether we undertake to turn it, and extract it by the feet, or leave the delivery to the efforts of Nature.

1127. The exit of the umbilical cord presents no particular indication when it is cold, without pulsation, or putrid: the child being already dead, we must leave its expulsion to Nature;

Nature; the cord alone cannot oppose it, though it form a loop without.

1128. Though the cord cannot then produce any obstacle to delivery, most accoucheurs are of opinion that it causes very great ones, when it is very short, or when being longer, it is twisted round the child's neck. They imagine that it keeps back the head, and hinders its descent; or, if it allows it to descend a little during the pain, that it draws it back again immediately afterwards, so that we see it return again as often as it advances. But this repulsion of the head depends entirely on the re-action of the parts which constitute the *perineum*, on the elasticity of the teguments, on the contraction of the constrictor muscles of the *vagina*, the *levator ani*, and others, contained in the substance of that species of bridge, and in that of the *labia*. The elasticity of the *cranium* also contributes something to it; but the twisting of the umbilical cord round the child's neck has nothing at all to do with it. This truth is so striking, that it has no need of proofs: those who should require them, would shew, by the demand, that they were not disposed to admit any.

1129. If the very cases quoted by those ac-

coucheurs who have adopted a contrary opinion, did not discover the source of their error, the most simple notions of the mechanism of labour would be sufficient to demonstrate it, and enable us to prove that the effect, which they have attributed to the twisting of the cord round the child's neck, arises from a very different cause. If what I have just stated does not indicate the absolute proscription of all the methods which have been proposed for terminating the delivery when the head continues to return after each pain, at least it discovers on what principles we ought to have recourse to them *.

* *De la Motte* assures us, that he cut the umbilical cord, wound round the neck, by directing the point of a pair of very long scissars to one of the circulars, by means of a finger introduced along the *sacrum* of the woman, and the face of the child, and that the delivery immediately followed.—See *Obs. CLIV.* page 479.

Is there any accoucheur, at this time, who in this sudden deliverance would see nothing but the effect of the section of the cord, and who could be so little skilled as not to perceive that of the violent distention of the external parts in performing that section? Perhaps no practitioner has followed the example of *De la Motte*: but nothing is more common than to hear cases related of the application of the forceps, to overcome obstacles which were attributed solely to the umbilical cord.

1130. It is, besides, often without any solid reason, and generally falsely, that this disposition, whether natural or accidental, of the umbilical cord is suspected. In fact, we cannot discover whether this vascular cord be very short, or very long, before the exit of the child; and it is not till the head is delivered, that we can tell whether the cord be twisted round the neck, or not; nor is it till that moment that it requires the attention of the accoucheur: for it cannot sooner hurt either mother or child, unless it cause a rupture of the umbilical vessels, or a separation of the *placenta*, as I have observed elsewhere.

A R T I C L E II.

Of the Signs, in general, which shew that a Labour will be preternatural; of the Indications presented by that Kind of Labour; and some general Precepts relative to it.

S E C T I O N I.

Signs, and curative Indications.

1131. A PRETERNATURAL labour begins with pains, whose cause, progress, and effect, are no way different from those of the most natural labour. The signs which characterize it, are deduced from accidents which complicate the labour, from the situation of the child, and from the existence of some of the causes already mentioned.

1132. We may easily distinguish the cases in which the woman suffers a flooding, convulsions, or any other accident, from those which are not complicated with any of those circumstances: but it is by touching only that we can discover the situation of the child. Though we sometimes acquire this knowledge without any trouble, even before the membranes are open; at other times we cannot without a
great

great deal of difficulty, as we shall see in the sequel. As it is impossible to state here the distinguishing signs of every position the child is capable of taking at the orifice of the *uterus*, or to establish the diagnostic and prognostic of them, I shall not speak of them till I come to treat of each of those positions.

1133. These labours present general and particular indications. The former consist in turning the child to bring it by the feet; in changing some positions of the head, in order to procure a better; in correcting the bad course it sometimes takes, as it engages in the *pelvis*, or merely in pushing back an extremity, whose presence hinders it from advancing: but the particular indications are different, according to the situation of the child, the part it presents at the entrance of the *pelvis*, and the circumstances which determine us to operate.

S E C T I O N II.

Of the proper Situation for the Woman in a preternatural Labour.

1134. THE situation of the woman, in this case, as in all others, is not very important before

before the time of delivering, unless particular circumstances oblige us to prescribe one rather than another; but it is very different at the time when we must operate.

1135. The woman must then be laid on the back, and as horizontally as possible, the breech being placed at the edge of the bed, so that the *coccix* and *perinæum* may be free, the thighs and legs half extended, and the feet resting on two chairs placed properly, or supported by assistants.

1136. A common bedstead is preferable in these cases to the *lit de sangles*, which is generally used in natural labours. We ought likewise to prefer one of a moderate breadth, and take care that it be not mounted on castors; as well for the security of the woman, as for the convenience of the accoucheur and his assistants. This bedstead should be furnished with several mattresses, and a solid cushion put under their extremity, to prevent the breech from sinking in, and make it more steady; the end of the bed may be covered with some folded sheets, and some pillows must be placed towards the middle.

1137. The woman being laid according to the directions in par. 1135, must be covered with a sheet, and even a blanket, if the season require

require it, to defend her from the cold, and prevent her being exposed naked to the eyes of the assistants; and also of the accoucheur, to whom, in these cases, the touch is much more useful than the sight. Two assistants, with one hand applied to the knees, and the other to the feet, must fix the inferior extremities, and separate the thighs properly; a third, if necessary, may be placed behind the shoulders, to keep her firm, and prevent her from sliding down, while a fourth furnishes every thing occasion may require. I must observe, in praise of the women, that there are very few who have not courage enough to dispense with this multitude of assistants, and then two are sufficient.

1138. I cannot see the utility of those whimsical and inconvenient positions which some accoucheurs have advised to place the woman in; as on the elbows and knees, &c. The situation I have just recommended is equally convenient in all cases.

SECTION III.

General Precepts relative to preternatural Labour.

1139. WHEN we have but imperfectly discovered the situation of the child at the orifice
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of the *uterus*, if the absence of the signs which denote the presence of the head, gives suspicion that the situation is not favourable, we must wait till the opening of the membranes, to dissipate our doubts, and acquire a certainty concerning it.

1140. Before that epoch, nothing invites us to terminate a labour which the bad position of the child renders preternatural, unless the woman be attacked by some of those dangerous accidents already mentioned: when that happens, all long delay is contrary to the principles of sound practice; but the consequences which may result from immediate delivery, sometimes oblige us to defer it a while, in order to attend to the particular and pressing indications which they prescribe.

1141. If there is reason to fear plunging the *uterus* into a state of atony, by delivering as soon as we have discovered the bad situation of the child; if the force necessary to be exerted in opening the neck of the *uterus*, to turn the child before the instant prescribed, is equally alarming; an *engorgement*, and inflammation of the *uterus*, which may be the consequence of the useless efforts to which it is sometimes abandoned after the evacuation of the waters, will not seem less to be dreaded.

1142. There-

1142. Therefore the most favourable moment for operating is that of the greatest dilatation of the neck of the *uterus*, and of the spontaneous opening of the membranes when it takes place in proper time. We ought to wait for that time when we are called before it; but when we are called much later, we must operate immediately, unless the inflammatory state of the *uterus* forbid it: for then it is necessary, before every thing, to take off the tension of that *viscus*, and diminish the *engorgement* of its vessels.

1143. The case, where the accoucheur is called some time after the spontaneous opening of the membranes, is not the only one in which he cannot take advantage of the most favourable moment for turning the child; for often at that moment the labour presents with the fairest appearances, and the accidents which ought to determine us to operate, do not manifest themselves till later. In this case, indeed, the child's head almost always presenting, descends more or less into the lower part of the *pelvis*, and may be easily extracted with the forceps, so that the labour differs little from a natural one.

1144. We are also forced to let slip the moment

ment which would, in some respects, have been the most favourable for turning the child, when the membranes burst at the beginning of labour, and before the neck of the *uterus* is sufficiently relaxed and open for the admission of the hand.

1145. Bleeding, emollient and mucilaginous injections, baths, and moist fumigations, joined to dilatations methodically performed with the fingers, are sometimes very useful in such cases, for weakening the rigidity of the neck of the *uterus*, and facilitating its opening.

1146. As soon as the favourable moment for operating shall be indicated, whether by the nature of the circumstances, or the state of the labour, the accoucheur having prepared himself for it, must place the woman in the situation prescribed in par. 1135.

1147. When it is necessary to introduce the hand into the *uterus*, to perform the delivery, some practitioners are still in the habit of putting on an apron, baring their arms, and even putting on false sleeves, &c. but these precautions, most of them useless, always strike the woman with terror, and a less frightful apparatus has often thrown them into a state of anxiety and disorder, difficult to remove.

1148. If

1148. If it is necessary to uncover the arms to turn the child, it is proper to do it no farther than the arm penetrates into the *uterus*. Some cloths, laid on one of the chairs which support the woman's feet, will serve the accoucheur to guard himself from the blood and waters which drain from the *uterus*; and to wipe his hand every time he withdraws it, that it may not be exposed bloody to the eyes of the woman and assistants.

1149. The operator should always proceed coolly, and appear tranquil, even in the most desperate cases, that he may not augment the fears of the woman, to whom the smallest embarrassment, the most trifling motion, or gesture, are then as so many mouths, which seem to her to announce her destruction.

1150. Before we introduce the hand, it ought to be dipped in some mucilage, or anointed with butter, or any other fat substance, that it may pass more easily, and with less pain. This precaution may likewise sometimes be very useful to the accoucheur.

1151. In all cases we ought to act slowly, move the hand little, and choose the favourable moment for advancing it. When the external parts of the woman are tight, the fingers must
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be introduced successively, so that the first, by dilating a little, may prepare the way for the others. We should choose the time of a pain for advancing the hand in the *vagina*, because the woman then bearing down strongly, makes it, as it were, enter of itself.

1152. Though it is useful to prefer the time of a pain to that of a calm, for advancing the hand in the *vagina*, it is of great importance to act only during the latter, when we insinuate it into the *uterus*, and afterwards not to move it at all during the pain; because the sides of that *viscus*, then embracing the child more strongly, and being more stretched, give a greater resistance, and are more subject to be torn.

1153. We cannot act with too much slowness, and circumspection, in dilating the neck of the *uterus*, when it continues thick, and is not very supple, lest we tear it from its junction with the *vagina*, in which part almost the whole action of any considerable efforts would center.

1154. After the hand has cleared the entrance of the *uterus*, we are often obliged to withdraw it many times, before we can reach the child's feet, especially if we do not proceed
3. methodically;

methodically ; because it is so compressed by the contraction of that *viscus*, or the pain, that it is benumbed, or suffers such painful cramps, that it loses all power of acting.

1155. During the whole time that we are introducing the hand, and turning the child, the other hand should be applied externally, above the *fundus* of the *uterus*, to fix it, or change its direction occasionally, and to make certain pressures, which circumstances, more difficult to determine here, than to perceive while we are acting, render sometimes necessary.

1156. The two hands are not always equally convenient for finding the feet of the child, and turning it : if there are cases where we may use either indifferently, there are many more which require one of them, and not the other. The choice depends on the particular situation of the child ; and on that choice often depends the facility of the operation, and even its success.

1157. The direction which the hand must follow, the position it must preserve as it advances in the *uterus*, and the extent of surface it goes over, must also be varied according to the situation of the child, and the part which

it presents ; so that we can give here none but very general rules on the subject.

1158. We ought always to insinuate the hand at the part most easy and certain for finding the child's feet. Sometimes it is along one of the sides of the *uterus*, but much oftener along its back part ; and hardly ever between its fore part and the child.

1159. When it is necessary to turn the child, the feet must always be brought down on its anterior surface ; in order to bend the *trunk* more and more in the same direction, and make it describe a smaller arch in the *uterus*. We ought never to pull the extremities in such a manner as to bend the child backwards, or subject the spine to any dangerous flexions, or contorsions.

1160. Although we might, in many cases, where we turn the child, extract it by one foot, it is always better to take them both ; because it will then come along more easily. Besides, in some cases, this precaution is so necessary, that without it we should sooner tear off the leg than bring the child along. It is indeed often difficult to bring down both extremities at the same time, because, being slippery with glaire and blood, as well as the hand which operates,

operates, it is not easy to grasp them together, and one of them is very apt to slip from the fingers. In that case, after having brought one of the feet to the entrance of the *vagina*, we must keep it there by means of a fillet, while we search for the other.

1161. We ought never to attempt turning the child during a pain, because it is then more confined in the *uterus*; but when the feet are without, and the head is sufficiently removed from the superior *strait*, when it presented there at first, we ought, as much as possible, to wait for a pain to extract it. The woman also ought to suspend her efforts while the accoucheur is employed in turning the child, but she cannot bear down too much while he extracts it.

1162. Some accoucheurs would have us indiscriminately abandon the expulsion of the child to the efforts of Nature, after having brought the feet to the orifice of the *vagina*; but the child not being then entirely turned, those efforts would become useless, and sometimes dangerous. If we would follow this precept, we ought at least to bring the child's breech to the passage: otherwise, far from obviating the

inconveniences which it is pretended we should by that means avoid, we should often only expose the child to greater. The cases, in which we might follow this precept with the least danger, are precisely those in which we might finish the extraction of the child without any risk, by pulling at the parts already delivered.

1163. This operation ought never to be performed precipitately, nor must the extremities of the child be pulled by jerks; but always in a slow and continued manner, especially when the waters of the *amnion* are but lately evacuated: in order to prevent the effects of a too sudden depletion of the *uterus*, and to hurt the parts less on which we act.

1164. The danger to which the mother and child are exposed in preternatural labour, is always relative to the kind, and the violence of the accident which renders it so; as well as to other circumstances which must be deduced from the time when the waters were evacuated, that in which we operate, the more or less bad situation of the child, &c.

1165. When we have discovered that the labour will be difficult or preternatural, whether

ther on account of the bad situation of the child, or any other accident, we ought to advise the woman's relations of it, and acquaint them of all the difficulties and the danger, if any exist, in order to avoid the blame which they think they have a right to throw on us, in case of a disagreeable event. But we should be more reserved with respect to the woman, lest we frighten her, and increase her danger: except when religion requires us to inform her of it.

1166. In all preternatural labours, when there is any reason to fear for the child's life, we ought to baptise the first part that appears without: and, in laborious cases, it is even sometimes proper to convey the water to the child's head by means of a syringe, before we attempt to extract it. I should dispense with transcribing here the form to be used on these urgent occasions, if all for whom I write were perfectly instructed in the sacred rites of our religion.

1167. As we throw the water in form of a cross on the part of the child which presents, we must pronounce these words clearly and distinctly: *Child, I baptise thee in the name of*

the Father, of the Son, and of the Holy Ghost. If we have no certain signs of the child's being alive, we must add these words, *if thou art living.* If it be a monstrous child, or an embryo little advanced, we also baptise conditionally, saying then: *If thou art capable of baptism, I baptise thee, &c.*

C H A P. II.

Preternatural Labours, in which the Child presents the Feet, the Knees, and the Breech.

1168. **R**EPEATED observations prove that a labour where the child presents the feet, the knees, or the breech, does not essentially require assistance. Some accoucheurs have even looked upon those where the feet present as the most natural; and I thought it right to comprehend them in that class, before I treated of the indications, whether general or particular, which they may present, according to the nature of the circumstances which complicate the labour: but they are very far from being always as fortunate as those where the head presents first, in a good position.

If we reflect on the most usual consequences of these two kinds of labour, we shall see that it is much to be wished, that the latter, which is the most frequent, should always take place.

A R T I C L E I.

Of preternatural Labours, in which the Child presents the Feet.

1169. THOSE labours in which the child presents the feet, considered as natural, are not the most advantageous; that is a truth avowed by all judicious practitioners, and are besides so rare, that we cannot establish their proportion to those where the head presents: but as preternatural, they must be esteemed the easiest, and most favourable. Nobody, unless perhaps in those ignorant ages when midwifery was cultivated only by women, has ever recommended to put back the feet, when they present, in order to bring the head or any other part to the orifice of the *uterus*; but, on the contrary, all accoucheurs have advised to search for them when the child is badly situated, or when it cannot be forced along by the natural powers, though properly placed.

1170. The danger which threatens the child when it comes without help, feet foremost, is in proportion to the length and force of the compression which the breast, the head, and the umbilical

umbilical cord suffer in the passage. That to which it is exposed, when we extract it, by pulling at those extremities, in addition to the compression, is also in proportion to the violent extension and stretching of the spinal marrow : whence we see that the circumstances in which it would answer best to leave the expulsion of the child to Nature, are those in which there are the fewest inconveniences to be feared in extracting it by the feet, and *vice versa*.

SECTION I.

Of the general Indications, in those Labours where the Child presents the Feet.

1171. WHEN the labour is not complicated with any troublesome accident, we ought to observe the same conduct, with respect to the woman, till the membranes open, as if the child presented the head : but at that epoch we are to disengage the feet, if we can, by means of two fingers introduced into the *vagina*, that we may avoid the difficulties stated in par. 730, and 1178 ; or at least direct them in such a manner

manner that they may not be stopped against any part of the *pelvis*, during their descent.

1172. If, when the feet are without, it is better to assist the labour by pulling at those extremities, even when the woman could deliver herself; with much more reason should it be done when she is unable to do it, or when the delivery cannot be deferred, without imminent danger to her or the child. Very often, in the latter case, we cannot wait till the feet come down spontaneously, but are obliged to introduce the hand, and take hold of them at the orifice of the *uterus*, and deliver both them and the rest of the body instantly.

1173. To the general causes, stated from par. 1079, to par. 1129 inclusively, which may render these labours preternatural, we may add here the manner in which the feet present and advance.

1174. I have in another place fixed the different positions which they may take with respect to the *pelvis*, to four principal ones (see par. 725, to par. 729 inclusively); and have shewn, that sometimes the third, and almost always the fourth of those positions, would oppose great obstructions to the natural efforts of labour, if we were not to change them seasonably,

ably, and bring the child to one of the two first, because that advantageous alteration does not always take place spontaneously.

1175. It is not uncommon for one foot to present, and advance in the *vagina*, while the other is retained above the *pelvis*, in such a manner as to oppose the exit of the child, whatever efforts Nature may make to expel it. If it be not always necessary to bring down this second extremity, it would at least be always very useful to do it; nor can we dispense with it, even in the most favourable cases, but by forcing the leg to unfold, and extend itself along the child's breast, in proportion as the *trunk* descends.

1176. To obtain this advantage, it is often sufficient, as we pull, to turn the toes of the foot which is come down, from without inward, and make the thigh execute a similar rotation. But if we find it necessary to employ a great deal of force, in bringing down the child by one foot, notwithstanding the precautions recommended, it is better to search for the other foot by insinuating the hand along the thigh of that which is already without, than to persist in those attempts: otherwise we might luxate the *femur*, or separate the *epiphysis* which constitutes
its

its head, from the body of it, which would be extremely dangerous to the child, supposing we should bring it alive after such violent efforts. We ought also, in order to prevent these accidents when we pull on a single foot, to do it in such a direction, as would carry the whole limb towards its fellow, if that also were disengaged; and hook the groin with the fore-finger, as soon as the breech is low enough, that the force necessary for the extraction may be divided as much as possible. When the breech is without, it is to be grasped with both hands, placed as high as the hips, and the *trunk* brought along, till the second foot come down of itself.

1177. We no longer live in those times when it was thought necessary to put back the first foot, in order to bring down both together: far from acting so, we ought to keep that foot down, either with the hand, or by means of a fillet, while we search for the other.

1178. We often meet with the same difficulty in bringing down a child whose two feet present together at the orifice of the *uterus*; but it then is, because the breech, against which the feet are naturally placed, descends at the same time with them, and the *pelvis*, though of the usual size, is too narrow for all these parts united.

united. These obstacles may be prevented, by bringing down the feet before the breech be forced between the bones of the *pelvis*; and surmounted when they exist, by pushing it up above the superior *strait*, before we endeavour to pull down the feet.

1179. If it is often necessary to search for the second foot, when the child presents but one, it is not less proper, when we meet with three, or four, to distinguish the two which belong to the same child, that we may not risk bringing down twins at the same time. We ought to use the same precaution when we find but two feet at the orifice of the *uterus*, because it is possible that each twin may present one*.

1180. When we are obliged to advance the hand to the orifice of the *uterus* to take hold of the feet, we must do it as we can, passing the fore-finger between them, and grasping them closely with the others. They are then to be wrapped in a soft dry cloth, that they may be held more easily, and firmly; being very slippery with the greasy *mucus* which always covers them. After that we bring the breech to the passage by pulling obliquely downwards.

1181. We then apply the hands above the

* See the article on twins in the sequel of this work.

knees,

knees, to ease the joints of the feet and legs; and, in order to spare those of the thighs, as soon as the hips are without, we take hold of them.

1182. But we ought never to apply the hands to the belly and breast of the child, with a view of acting nearer to the parts retained, for in doing that we might impede or stop the motion of the heart; we might likewise compress and bruise the liver, which is very large and very tender at that epoch: and nothing could be of more dangerous consequence. It is the hips only that we ought to handle, till the shoulders are without.

1183. When we have brought down both feet, the child descends easily, till the *axillæ* arrive at the superior *strait*; because the inferior extremities and the *trunk*, so far, form a long and pretty regular wedge. After that, its course becomes slower and more difficult, from the projection of the shoulders, and the obstacles the arms meet with, in rising towards the sides of the head: which obliges the accoucheur to exert more force to bring it along.

1184. We cannot, in general, extract the child too slowly, in order that the woman's parts may be dilated more gradually, and with less

less pain. We ought likewise to take care that the force exerted act in the direction of the axis of the *pelvis*. A slow continued traction, directed alternately upward and downward, but so as to cut the inferior *strait* of the *pelvis* obliquely, is preferable to all the more complex motions, and especially those of rotation, which some practitioners make the child execute.

1185. When we are forced to deliver by the feet, the umbilical cord does not always descend in the same proportion as the child's *trunk*, on which we immediately act. It can be drawn down only by that; but first, it is very much stretched, and the *umbilicus* is in danger of being torn, if the cord be retained ever so little above the *pelvis*. To prevent that rupture, the consequences of which might be very troublesome, we must not forget, as soon as the breech appears, to insinuate two fingers along the child's belly, and taking hold of the umbilical cord, pull down a loop of it, longer or shorter, according to circumstances; we must repeat the same thing from time to time, as the *trunk* descends. In this kind of labour, the cord is also sometimes found between the child's thighs, which may expose the *umbilicus* to the same danger of tearing; it must then be relaxed
by

by pulling down that portion of it which ascends along the child's back, and, if we can, enough to slide it over one side of the breech; we may then pass one of the legs through it, and place it by the side of the child.

1186. If the cord be so tight, that we cannot bring down any part of it, whether because it is twisted round the child's neck, or from any other cause, it is better to cut it, and just squeeze the two ends a little with the extremities of the fingers, without tying them, than to pull the child in that tense state of the cord.

1187. As soon as the *axillæ* appear at the *vulva*, we ought to bring down the child's arms. The advantages resulting from it are no longer contested, except by persons more attached to the first impressions they have received, than instructed in the true principles of the art. It is dangerous, say they, to bring down these extremities, because being placed along the child's neck, they prevent the strangulation which the contraction of the orifice of the *uterus* on that part might produce, and render the figure of the child more regular; which favours the descent of the head. I shall not lose time in refuting this opinion; both reason and experience contradict it.

1188. The cases where we might dispense with bringing down the child's arms, are always those in which it is most easy to do it; the mother's *pelvis* being then very large relatively to the size of the head. But when that favourable proportion does not exist, it is of the utmost consequence to follow the method I propose, because the arms can only add to the relative size of the head, and render its exit more laborious.

1189. In disengaging the child's arms, we must always bring them down on the fore part of the breast, by making the elbow follow the same course which it seems to have done in ascending to the side of the head. We ought to begin with the arm which is underneath, because it is commonly less compressed than that which is behind the *pubes*.

1190. Before we bring down the first arm, we raise the child's *trunk*, wrapped in a napkin, and supported by one hand, obliquely towards one of the woman's groins, while with the other hand we act in the following manner. We first bring down the shoulder as much as we can, in a line with the body, by taking hold of it with the thumb, and fore and middle fingers. Afterwards we insinuate one or both of those

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fingers into the *vagina*, along the arm, and posterior part of the child's neck, as far as the bend of the elbow, on which we rest the fingers, to bring it down towards the breast, and disengage it.

1191. That extremity must be wrapped in the same cloth which is round the child; the body is then to be carried downwards, towards the point diametrically opposite to that where it had been raised before, and supported by the hand which disengaged the first arm, while with the other we bring down the second, observing the same rules as before.

1192. Although it is generally so easy to bring down the child's arms, that the greater part of these precautions may be dispensed with, yet I thought myself obliged to lay them down, because there are cases where they are absolutely necessary. The obstacles which may, and often do oppose the bringing down the arms, sometimes arise from forgetting some of the principles I have just stated; and sometimes, because the head being too high, or too low, strongly presses the arms against the internal edge of the superior or inferior *strait*. These difficulties may likewise depend on one of the arms descending directly behind the
symphysis

symphysis of the *pubes*, or because it is crossed over the back of the child's neck.

1193. The obstacles which proceed from no other cause than the omission of some of the precautions I have recommended, may be easily surmounted by recollecting them seasonably; but it is not so in the other cases. When the head is still so high, that the shoulders scarcely appear at the entrance of the *vagina*, we must bring it down farther, if it can be done without endangering the child's life: otherwise, the arms must be brought down first; which we may always be able to do, however difficult it may seem, by proceeding slowly and methodically. But when the head is too low, and presses the arms against the edge of the inferior *strait*, it must be pushed up a little, that they may be less confined.

1194. If one of the arms be found strongly pressed between the child's head and the *symphysis* of the *pubes*, we must also push the head back a little, in order to free the arm, and enable us to make it pass towards that side of the *pelvis* to which the face answers. When one of the arms crosses the child's neck, we must act in the same manner, but bring the other arm down first.—See par. 1235, and following.

1195. After having disengaged the arms, we must apply to the extraction of the head; and whether it remain a while in the *pelvis*, when that is ever so little contracted, or we endeavour to extract it immediately, by pulling at the *trunk* and shoulders, this seems to be the most critical and dangerous moment for the child *: on one side it is exposed to the disagreeable consequences of a compression of the cord, and on the other to the melancholy effects of an extension and stretching of the spinal marrow.

1196. Some practitioners, with a view of preserving the child, have advised leaving the expulsion of the head to the efforts of Nature; while others have thought, when once it is in the cavity of the *pelvis*, we cannot extract it too quickly: both opinions may be equally dangerous.

* It must be allowed, however, that its death would not be so sudden in this case, as in that where the breast occupies the whole length of the canal of the *pelvis*, supposing the umbilical cord to suffer the same degree of compression; because it may respire when the head fills the cavity of the *pelvis*, if we take care to direct the mouth towards the *vulva*, as I have convinced myself a number of times: which may allow us to wait for the expulsive pains with less inconvenience. But in the other case, as it cannot respire, it must die presently, if the compression on the cord be strong enough to stop the circulation in it.

1197. When

1197. When the *pelvis* of the woman and the head of the child are in their just proportions to each other, the accoucheur must only act in concert with the efforts of Nature; but before all things, he must take care to give the head a favourable situation, if it has not taken it of itself: he must place the face on one side, if the head be still above the superior *strait*; and underneath when it occupies the cavity of the *pelvis*.

1198. He must afterwards introduce a finger into the child's mouth, but much less for the sake of pulling on the lower jaw, than to make the chin form a continued plane with the breast, and hinder it from hitching on any part of the *pelvis*. He must support the *trunk* with the same hand, and the fore arm, while with the other, placed on the child's back, he grasps the hind part of the neck, by means of the fore and middle fingers bent over the shoulders.

1199. While the head is still above the superior *strait*, we ought to pull almost directly downwards to make it descend; but cautiously, and only during the efforts of the woman, which we must then solicit briskly, by confirming her hopes of a speedy deliverance. When

the head is descended into the cavity of the *pelvis*, and the face is towards the *sacrum*, if we continue our efforts to extract it, it must only be by raising the child's body towards the *pubes* of the mother: for by pulling in any other direction, and especially downwards, we should directly oppose the intentions of Nature. The delivery of the head becomes then almost entirely her work; and external efforts, though well directed, are at that time of little use. The accoucheur has, as I may say, nothing to do during the time, but to support the child's *trunk* with one hand, and the *perinæum* of the woman with the other, to guard it from tearing, as is done in a natural labour.

1200. Things do not however always terminate so happily, in the last period of labour, when the child comes by the feet; because the proportion between the dimensions of the head, and of the *pelvis*, is not always so favourable. When there is a defect of proportion between those parts, the greater that defect is, the less the security for the child's life; and the more cautiously the accoucheur must proceed, because his efforts, which are then unfortunately necessary, increase the real and almost inevitable danger of the child.

1201. Its death in this case is almost always less the effect of the compression of the head, than of the umbilical cord and the breast: but it depends more especially on the straining which the spinal marrow suffers, in the violent extensions of the vertebral column; as well as on the compression, and even tearing, of that medullary substance. A melancholy experience has but too often demonstrated this truth; and the anatomical examination of a great number of children, to whose assistance I had been called, but too late, by convincing me of it, has led me many times since to employ a salutary method already known, but too much neglected in the present circumstance, though the only one capable of freeing the child from a part of the peril which threatens it.—See par. 1204.

1202. Most accoucheurs and midwives conduct themselves very differently in this disagreeable conjuncture. Some hook the lower jaw, by means of two fingers introduced into the mouth, and pull at that. Others say they place those same fingers at the sides of the nose, or advance them above the forehead; a less dangerous resource, but still weaker than the other, when the *pelvis* is sufficiently large relatively to the volume of the child's head; and merely

speculative when a defect of proportion between those parts obstructs the delivery.

1203. If those accoucheurs endeavour to bring down the head conformably to the intentions of Nature, there are others, who having no hope but in the strength of their arms, pull the *trunk* of the child without mercy or caution, or any regard to the direction the head ought to take, and which Nature tries in vain to give it. The direction, in which they can employ the most force, appearing to them the best, some of them pull the trunk directly downwards, or upwards, and others in an horizontal direction; but sometimes by a continued gradual motion, and at other times by jerks. The latter act by inclining it alternately from one side to the other; and the former, by making it describe a motion like a sling, or of rotation, round its axis.

1204. All these manœuvres are equally fatal to the child; because those external efforts cannot act on the head, till they have violently stretched, and dragged the neck. A method by which we might act immediately, and as it were exclusively on the head, would be much less dangerous and more useful. *Smellie* seems first to have perceived this important truth, and

he put it in practice feveral times with fuccefs; fince we read in his collection of cafes, that he obtained advantages from the forceps, in the unhappy circumftance in queftion, which he would have fought in vain any other way. An accoucheur who feems to have imitated *Smellie*, recommends introducing a fingle branch of the forceps on the child's face; but what can be expected from that *?

S E C T I O N II.

Of the firft and fecond Species of Labour, in which the Child presents the Feet.

1205. I SHALL not repeat here what has been faid in par. 726, concerning the diftinguifhing figns of the firft fpecies of labour, in which the child presents the feet. I fhall only remark

* I here only fummarily indicate the utility of the forceps for extracting the child's head, after the exit of the *trunk*; becaufe I intend to detail all its advantages in the fourth part of the work, where I fhall treat alfo of the particular indications prefented by the dropfy of the head, and of the *abdomen*; and of monftrous conformations, which may render labours, where the child presents the feet, extremely difficult.

that

that no other presents fewer particular indications; because the situation of the child is such, that the greatest diameter of the breech, of the shoulders, and the head, successively present themselves diagonally at the entrance of the *pelvis*, if the accoucheur takes care to maintain those parts in their primitive direction.

1206. In this species of labour, as in the others, we are to endeavour to disengage the feet, by introducing one or two fingers into the *vagina*, as soon as the membranes open; and if we cannot, we must be contented to direct them properly, and wait till they be sufficiently descended, to be grasped by those fingers, and brought without. But when the woman is attacked by any dangerous accidents, we must introduce the whole hand, and take hold of them at the entrance of the *uterus*.

1207. When the breech is without, we ought to insinuate the fore and middle fingers of the left hand along the child's belly, to examine the state of the *umbilicus*, and if it be threatened with a rupture, relax it, by bringing down the cord, as directed in par. 1185, and following. We then wrap all the parts without in a dry cloth, and grasp the right hip of the child with the right hand, and the left hip with the other,
and

and pull obliquely downwards till we meet with some difficulty; our efforts must then be directed differently, and the hands only act alternately in the following manner.

1208. With the right hand we pull the right hip, by raising all the parts already without towards the right groin of the woman; and then do the same with the left, by carrying them obliquely downwards, in a line which would pass under the woman's left thigh. The same thing must be repeated alternately, but very slowly; and care must be taken to give those motions sufficient extent, to disengage each time a portion of the *trunk* *.

1209. When it is time to bring down the child's arms, we must raise the *trunk* obliquely towards the woman's right groin, where it must be supported by the left hand, while with

* Practice shews the advantages of this mode of acting, better than they can be demonstrated here: I shall only remark, that it is less straining to the child, than if it were pulled directly according to the length of the *trunk*; because it requires less force to bring it along. But the accoucheur may dispense with those futile and embarrassing precautions which some have recommended, to keep him in a firm and fixed situation; such as separating the feet to an angle of forty-five degrees, or thereabouts; being supported behind by an assistant, &c.

the

the other we bring down the right arm, which is underneath, according to the principles already established : then wrapping it in the same cloth with the *trunk*, we must carry the whole downwards, and towards the woman's left thigh ; where it must be supported by the right hand, while with the left we disengage the other arm from under the *pubes*.

1210. After having thus brought down the arms, we must slide the fore and middle fingers of the left hand along the child's neck, to examine the situation of the face with respect to the superior *strait*, and place it on one side if it be not so ; or to assist in turning it downward when the head is descended into the cavity of the *pelvis*. Afterwards we may insinuate one of those fingers into the child's mouth, bending it like a hook, and proceed to extract the head according to the precepts already laid down.

1211. The second species of labour where the child presents the feet, is, after that which I have just described, the least unfavourable. The situation of the child with respect to the *pelvis* will appear the same in both, if we only consider their relative dimensions. The only difference we observe in them is, that in the
first

first species, the child's back answers to the left side of the mother, and in the second to the right. From this slight difference, however, the particular indications arise, which we are to attend to.

1212. We must proceed, as in the preceding case, till the breech appears at the *vulva*; and then introduce two fingers of the right hand towards the *umbilicus*, to relax the cord, if it be too tight. Then with the same hand we grasp the right hip, which is scarcely disengaged from under the *pubes*, and with the left the hip which is underneath, taking care not to press the child's belly too much; we then pull alternately on each, carrying the extremities of the child obliquely upward and downward, in a line which would pass from the woman's left groin, under the right thigh: these movements are to be repeated, till it be time to bring down the arms, taking care never to twist the child's *trunk* round its axis.

1213. The accoucheur must then, with his right hand, keep up the child's body towards the woman's left groin, while, with the left hand, he brings down the arm which is underneath: afterwards, carrying the *trunk* downwards, and towards the right thigh, he must disengage

disengage the other arm from under the *pubes*, bringing it down properly with his right hand.

1214. It will be necessary to examine immediately afterwards, whether the child's face be towards the left side of the *pelvis*, to turn it so if it be not; and as soon as the head has cleared the superior *strait*, it is to be turned into the curve of the *sacrum*, in order to finish the delivery, as already directed.

S E C T I O N III.

Of the third and fourth Species of Labour, in which the Child presents the Feet.

1215. THE position of the feet which constitutes the third species of this kind of labour, is rather rare; and it would be far from being so favourable as the two former, if the child did not usually, as I may say, turn of itself, in proportion as it descends, and change insensibly to one of them.—See par. 774, and following.

1216. We cannot too early make the child's *trunk* take that direction, when it presents with the heels to the *pubes*, and the toes towards the *sacrum*, if Nature does not do it herself;

self; in order to turn the face in time from over the *sacro-vertebral* projection, and hinder the head from presenting its greatest length, parallel to the smallest diameter of the superior *strait*.

1217. We must not, however, judge of the true situation of the head, relatively to the superior *strait*, by the position we have given to the *trunk*, nor of the position of the *trunk*, by that of the feet: for we should very often be deceived to the disadvantage of the child, it being possible for the face to be on one side, while the breast is underneath, and the feet in some other direction; and *vice versa*.

1218. As soon as the feet are without, the toes are to be directed towards the right or left side of the *pelvis*, and a little downwards, to bring them to the first, or second position. The breast must be turned the same way, in proportion as the *trunk* descends; and when the shoulders are sufficiently low, we must assure ourselves of the position of the head, by introducing the finger along the neck, and examining whether the face has undergone the same change of position, and whether it be turned towards the side to which we have directed the breast.

1219. If

1219. If the brim be a little contracted from the *pubes* to the *sacrum*, it would be better to keep the child's *trunk* in its primitive position, that is to say, to bring down the back directly behind the *pubes*; we ought even to bring it to that position, if it were in one of the two former, because it would descend more easily. But then, as soon as the shoulders have cleared the superior *strait*, we must not forget to turn the face to one side, by advancing several fingers on one of the child's cheeks, and not by turning the *trunk* on its axis.

1220. A skilful accoucheur will never jam the head with its greatest length between the *pubes* and *sacrum*, by pulling at the feet, if he always bear in mind the relation of the dimensions of that part to those of the *pelvis*: but he cannot promise himself that he shall never be called, in cases where the head is already fixed in that manner, to perform what others have in vain attempted to do. Though this accident may sometimes be the effect of the natural efforts of labour, it much oftener proceeds from the ill-directed manœuvres of the accoucheur, too much a slave to the illusive precept of those who have recommended to bring the face always underneath.

1221. It

1221. It is not very frequent, in such cases, that the child is still alive when we are called in to finish the delivery; whether the accoucheur, who knew not how to prevent this disagreeable circumstance, has pulled violently at the *trunk*, and in some measure exhausted himself, before he confessed his inability, as is but too common, or whether he has made no such efforts.

1222. When the head is thus retained in the superior *strait*, it must be disengaged by pushing it up a little; and afterwards turning the face to one side. We ought never to expect this change of position from any efforts which can be exerted on the *trunk* without, by turning it one way or other on its axis, or by pushing it back, or otherwise; for all these movements are so much the more free, and succeed so much the less, as the child's neck has been more stretched. Besides, the efforts which we exert on the *trunk*, do not always act on the head, unless we give to those movements a much greater extent than their natural limits permit; which would be extremely dangerous to the child, if it were still alive.

1223. To change the situation of the head certainly and properly, we must begin by

bringing down the child's arms with all possible caution. We then introduce the hand, or some of the fingers only, into the *vagina*, to push up the *occiput* ever so little above the *pubes*; and to turn the forehead from before the *sacro-vertebral* angle, and place it opposite one of the *sacro-iliac symphyses*; but preferably towards the right. After that, we go on to extract the head as in the most common cases.

1224. This situation of the child, in the fourth species of labour where it presents the feet, is such, that the face always comes upwards; and though it generally turns a little away from the *symphysis* of the *pubes*, as the head approaches the superior *strait*, it never fails to place itself under it, as soon as the head descends into the cavity of the *pelvis*: which renders the labour more difficult and laborious, than in the three former species.

1225. Most accoucheurs, less afraid of the difficulties which the child's face meets with in disengaging from under the *pubes*, than of the phantom of difficulty which they have created, concerning the retention of the chin on the superior edge of that bone, where the child, say they, remains, as it were, hitched, have recommended to turn the face exactly underneath,

underneath, by rolling the *trunk* on its axis, as soon as the hips are without. If we were to obey this precept literally, though dictated with very salutary views, it might produce the same consequences as those we should endeavour to avoid: for by conducting the face underneath, before the head has cleared the superior *strait*, the chin would be equally subject to be hooked backward, or, at least, we should expose the head to engage with its greatest length parallel to the smallest diameter of the *strait*.

1226. Two very celebrated men, one among us, the other in England, have directed merely to turn the face to one side, or at most towards one of the *sacro-iliac symphyses*. If they knew the relation the dimensions of the head have to those of the *pelvis*, better than those who preceded them, they seem to have been more employed in exposing the faults of their method, than in bringing it to perfection. Those who turned the child's breast underneath, though contrary to their intention, almost always left the face on one side; while the greater part, at present, leave it over the *pubes*, by only turning the breast to one side.

1227. In order to lay down more clearly the

mode of proceeding in this case, I shall distinguish three times in it. In the first, the child's feet are still within the *uterus*; in the second, the child is delivered as far as the loins, and the waters have been drained off a considerable time; in the third, the shoulders are without, or appear at the *vulva*, and the head is adapted to the superior *strait*.

1228. In the first time, as soon as the accoucheur can with one hand take hold of the child's feet, he ought to turn the toes underneath, pulling almost directly downward. He must take care afterwards to turn the breast in proportion as it descends, at least, opposite one of the *sacro iliac symphyses*, but preferably before the right; and do the same with respect to the face, as soon as the shoulders appear. This change of position is easily performed in the first time, but not so in the second; because the shoulders and head being more closely embraced by the *uterus*, follow more difficultly, and imperfectly, the movements given to the parts without.

1229. In the conversion, which the child must be made to undergo in the second time, regard must be had to the relation which the breast has to the *sacro-iliac symphyses*, in order to turn it towards

wards that which it is nearest to. To perform this change of position, we must take care to grasp the child's *trunk*, as near as possible to the entrance of the *uterus*, and not to act but in the interval of the pains. In order to do it in the most convenient manner, especially when we meet with any difficulty, we introduce the four fingers of each hand at the entrance of the *vagina*, or even a little farther; those of one hand along the loins, and the others to the belly; consequently to the *sacrum* and *pubes* of the mother. We first endeavour to push up the *trunk* a little, and immediately afterwards bring it down again as far as before, or a little farther each time: these movements are to be repeated a good many times successively, and in the course of them the breast must be inclined towards the *sacro-iliac symphysis*, to which we intend to turn the face. We ought indeed to turn it a little beyond the *symphysis*, according to the advice of *Smellie*, and then bring it back again; in order to allow for the natural mobility of the neck, and the twist it is susceptible of, without losing sight of the observation made in par. 1222.

1230. Notwithstanding all these precautions, we must not flatter ourselves that we

shall always be able to make the head take the favourable position which we endeavour to give it: for sometimes the face still remains over the *pubes*. This case is exceedingly dangerous for the child, if we do not pay the greatest attention to it before we pull the *trunk*, on account of the violent twist in the neck. Therefore, after having turned the breast downward, as I have just directed, we must ascertain the true position of the head.

1231. It almost always happens, when we turn the child's *trunk* thus round its axis, that one of the arms places itself obliquely behind the neck, and below the *occiput*, by which it afterwards becomes more or less confined against one of the *ossa pubis*: which increases the difficulty of bringing it down, and often renders the descent of the head more laborious.

1232. When the accoucheur has not succeeded in turning the face in proper time from over the *pubes*, if he perceives it when the head is but just arrived at the brim, he may yet hope to change its position, by conducting himself as I have just recommended: but he must not promise himself any thing from this mode of proceeding, when any ignorant person has pulled inconsiderately at the *trunk*, with a de-
sign

sign to extract the head thus retained, or when Nature has a long time endeavoured to expel it.

1233. It is exceedingly rare in these cases for the chin to be retained, and, as it were, hitched on the edge of the *ossa pubis*; it is almost always the middle of the face, near the root of the nose: and the head being then engaged, makes it much more difficult to change its position. The same remark is equally applicable to the third position, when the face descends directly before the projection of the *sacrum*; for it is not usually the chin which stops at that part.

1234. The child is generally the victim of this bad position of the head. If it is not always entirely deprived of life, there is little room for hope, when the midwife or accoucheur confess their inability, and call in a second.

1235. To change the position of the head thus retained at the entrance of the *pelvis*, we must act immediately upon it, in order to avoid the rock on which the mobility of the *trunk*, in these circumstances, has precipitated many an accoucheur, who imagined they had turned the child's face to one side, or underneath, be-

cause they had easily turned the breast so*. It must be remembered, that this rotatory motion of the *trunk* is always more free and easy, as the child's neck has been more stretched; and that we only twist it, and facilitate the separation of the *trunk* from the head, when we exceed its proper limits.

1236. After having brought down the child's arms cautiously, especially if it be still living, we must support the *trunk* with the left hand, and slide the right, except the thumb, along the back of the neck, to push up the *occiput* above the *sacro-vertebral* angle, and turn it towards one of the *sacro-iliac symphyses*, or even to one of the *acetabula* if we can. While we turn away the *occiput* thus from the projection of the *sacrum*, we must take care to turn the *trunk*, which is without, in the same direction. When the head is completely in the cavity of the *pelvis*, we may place the face underneath, in order to extract it conveniently.

* See de la Mothe, among others, *Observ.* 275, nouv. edit.,

A R T I C L E II.

Labours in which the Child presents the Knees.

1237. THE union of all the circumstances, without which delivery cannot be performed naturally, that is, without assistance, is so rarely met with in a woman whose child presents the knees, that we may be allowed to class this species of labour among the preternatural, independently of those circumstances which may render it so when it begins with the most favourable appearances.

S E C T I O N I.

Of the Causes which render a Labour, in which the Child presents the Knees, difficult, or preternatural.

1238. THE obstacles which most frequently oppose the intentions of Nature in this species of labour, arise from the presentation of only one knee at the orifice of the *uterus*, while the other extremity, folded up, is retained above
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the margin of the *pelvis*, so that the child cannot descend, notwithstanding the violence of the efforts which tend to expel it.

1239. Neither can the delivery be easily performed without assistance, when the two knees present together; because those parts, as they come down, may butt against the curve of the *sacrum*, and stop there, while the feet, pushed down by the breech, which is then forced to engage, tend to come out first; which cannot take place unless the *pelvis* be very large. When it is narrow, delivery becomes impossible without help.

1240. To these causes, which frequently make it necessary to have recourse to art, in labours where the child presents the knees, we may add all those which I have mentioned before, such as convulsions, flooding, &c.—See par. 1079, and following.

SECTION II.

Of the characteristic Signs of the several Species of Labour in which the Child presents the Knees, and the Indications they present relatively to the Mode of operating.

1241. THE essential differences of those labours where the child presents the knees, as well as their signs, having been stated in par. 758 and following, it remains now to treat of the indications presented by these labours. Among those indications, some are general, and others particular. The latter are deduced from the situation of the knees, as well with respect to each other, as to the *pelvis* of the mother, and from the accidents which complicate the labour. The general indications are the same as in those labours where the child presents the feet.

1242. Some practitioners have thought it right to bring down the feet, whenever the knees present; but far from giving such a precept, I shall lay it down as an invariable rule, never to search for the feet, unless the labour be complicated with some accident, and the
knees

knees still at the entrance of the *pelvis*, or capable of being easily pushed back to it : otherwise, we must let them descend, and content ourselves with favouring their progress, by turning them off from those parts of the *pelvis* where they might be stopped ; till we can hook them with the fore finger of each hand, insinuated into the bend of the hams, and so bring them along.

1243. These aids, which in common cases are only, as I may say, of a relative utility, become absolutely necessary when the woman is exhausted, or when any alarming accident requires us to deliver immediately. If the knees are still far off at the time when we are obliged to operate, we must push them up above the margin of the *pelvis*; then introduce the hand, and search for the feet. We proceed in the same manner when the knees, pushed down by the efforts of labour, are stopped in the curve of the *sacrum*, and the feet are descended as low on another side, so that the legs lie across the *pelvis* : we then push up the knees, and bring down the feet. But we act differently when the knees are low down, and the feet still high up. We ought, in that case, to endeavour to bring them down, by means of the fingers insinuated into
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the hams, as directed in the preceding paragraph: if we cannot succeed with the fingers, we may have recourse to a fillet*.

1244. The best fillet is made of a piece of tape an inch wide, and an ell long. We double it, and adapt the loop to the end of the fore finger, keeping it fixed there, by pulling the two ends with the other hand. We introduce the finger, covered with the fillet, on the outside of the knee; then insinuate it between the leg and thigh, turning it into the bend of the ham, so that its extremity may pass across it, to the inside of the knee: there we must fix it with the end of the thumb while we bring the finger round from the other side; then with the finger and thumb draw down one of the ends. It is never necessary to apply a fillet upon each knee, one being fully sufficient.

1245. The fillet being thus fixed on the bend of the ham, we take hold of both ends with one hand, and winding them, if they are long enough, two or three times round the fingers, pull downwards according to the axis

* It perhaps may never happen, that a skilful practitioner will be obliged to have recourse to this method: but in a system it is necessary to provide for all possible cases.

of the *pelvis*; while with the fore finger of the other hand a little bent, and applied to the outside of the second knee, we keep it close to the first, that it may be obliged to descend at the same time, and follow the same direction.

1246. For want of a fillet we may advantageously, and with much less trouble, use a blunt hook, in the same manner as I have frequently applied that which terminates the handles of *Levret's* forceps to the groin, when the breech has been a long time jammed in the *pelvis*, and could not advance: but for the knee a different hook will be necessary, such as I have recommended in par. 1261.

1247. Whether we have recourse to fillets or to the blunt hook, whether we propose to push back the knees and bring down the feet, or only direct the former so that they may easily pass through the canal of the *pelvis*, it is of no great importance whether we use the right or left hand. But it is not so when only one knee is advanced, and the second, being retained above the brim, opposes delivery. In that case, in which we must at least search for the foot of the retained extremity, if we cannot bring down both, by first pushing up a little the

the knee which has descended ; the facility of the operation depends on the choice of the hand which we insinuate into the *uterus* ; and that choice must be determined by the relative situation of the two inferior extremities of the child, as well as by the particular situation of that which is retained at the brim of the *pelvis* ; so that sometimes we must introduce the right hand, and sometimes the left.

A R T I C L E III.

Of Labours in which the Child presents the Breech.

1248. BY recollecting here what I have said in another place concerning the causes which may render a labour preternatural, though it had begun in the most advantageous manner, and the difficulty which most women experience in delivering themselves without help of a child presenting the breech, it will be allowed that those labours may justly be classed as such ; and that having in another place shewn the mechanism by which they are sometimes performed without help, it is proper
to

to state the causes which may render them difficult, and to describe the manner of terminating them in those circumstances.

SECTION I.

Of the Causes which may render those Labours where the Child presents the Breech, difficult, or preternatural: the essential Differences of those Labours, and their distinguishing Signs.

1249. I SHALL not endeavour to determine why children sometimes present the breech, lest I lose myself with those who have already attempted to account for it. I shall confine myself to the exposition of the causes which may render this species of labour impossible, or at least very difficult and dangerous without assistance. Among those causes, some have been the subject of several preceding sections (see par. 1079, and following); others are peculiar to this species of labour, and sometimes depend on the extraordinary size of the child's breech, relatively to the *pelvis* of the mother, and sometimes only on their situation.

1250. The essential differences of these labours,

bours, arise from the manner in which the breech presents with respect to the brim of the *pelvis*. Sometimes their position is such, that the child's back answers directly to the *pubes* or loins of the mother ; and sometimes to one of her sides, or to one of the intermediate spaces. However, I think it best to fix the number of these various positions to four.

1251. It is not always more easy to discover the position of the breech, than to determine whether that is the part which presents. We often find a great deal of difficulty in it, especially before the membranes are open, and when the breech has been a long time engaged and jammed between the bones of the *pelvis*. In the first case it is, as I may say, not only beyond the reach of the finger, but recedes still farther on the least pressure ; the child enjoying a great mobility while surrounded by the *liquor amnii*. In the second case, where the waters are evacuated, the breech is always found considerably tumefied. Some accoucheurs have mistaken it, but chiefly in the latter case, for the child's head, whose teguments they supposed were swelled and puffed up : in one of these cases, a very skilful practitioner taking it for a locked head, delivered with the forceps :

an error which seems to me less favourable to the improvement of the art, than it appeared to its author, and since to other accoucheurs, though it seemed to discover a new method of extracting a child presenting the breech ; for I think that method very far from being commendable in those cases *.

S E C T I O N II.

Indications in those Labours where the Child presents the Breech.

1252. THE idea which has been formed of the relation which the dimensions of the child's breech bear to those of the mother's *pelvis*, has given birth to a variety of opinions concerning the mode of operating in these labours. Some have imagined that we ought always to push up the breech and bring down the feet ; while others have thought it better always to commit the expulsion of the child to the efforts of Nature : this contrariety cannot but confound young practitioners, instead of serving them for

* See the article which treats of the forceps, and their manner of acting, Part IV.

a guide. The indications in this species of labour are different, according to the circumstances which complicate it, its advancement, the position of the breech, and its size.

1253. When none of those accidents before-mentioned exist, if the child's breech be small, or even of a middling size, relatively to the diameters of the *pelvis*, provided also that it be well situated, we ought to leave its expulsion to the efforts of Nature. But if it comes along with difficulty, when it is arrived at the lower part of the *pelvis*, we may assist it by pulling towards us, during every pain, with the fore finger of each hand, curved like hooks, and insinuated into the groins ; or with one finger only, applied preferably to that groin which answers to the *sacrum* of the woman. After thus disengaging the trunk and the feet, we finish the delivery, as if the latter had presented naturally.

1254. When the obliquity of the *uterus* is considerable, and when it contains a great deal of water, the child's body may be so inclined, relatively to the axis of the *pelvis*, as to present but one buttock. In that case, delivery can seldom be performed without help, whatever may be the size of the breech ; at least, unless

the second buttock, which is retained on some part of the margin of the *pelvis*, approach the superior *strait*, so that they may both engage at the same time: or, in other words, the length of the body must become nearly parallel to the axis of the superior *strait*. This change is often procured by making the woman lie on the side opposite to the deviation of the *uterus*, at the beginning of labour, and especially at the time the waters are evacuated. When that precaution is not sufficient, we must introduce the hand to the entrance of the *uterus*, to bring the buttock which rests on the edge of the *pelvis* to the superior *strait*; or, which is infinitely better, to bring down the feet.

1255. The feet must always be sought for, when the woman is attacked or threatened with any accident, and when the volume of the breech so far surpasses the size of the *pelvis* that it cannot engage in it, or not without a great deal of difficulty; because, in all those cases, it is to be feared that the woman may be exhausted, and sink, before that part be sufficiently advanced, to be hooked, and brought along with the fingers, in the manner directed in one of the preceding paragraphs.

1256. We must not however undertake to
bring

bring down the feet, every time that any accident requires us to deliver without delay, when the child presents the breech. This method cannot be safely put in practice, but when the breech is still at the entrance of the *pelvis*, or so little advanced, that it is easy to push it back. When it occupies the bottom of that cavity, or is strongly wedged in it, and especially when it has cleared the orifice of the *uterus*, we ought not to think of bringing down the feet; because it would expose both mother and child to additional danger.

1257. In these latter cases we must endeavour to bring along the breech with the fore finger of each hand, curved like a hook in the bend of the groins. If we do not succeed by that method, recourse must be had to fillets, or blunt hooks. Were we to consider only the materials of these different instruments, and their mode of acting, the fillet would, no doubt, merit the preference : but its application is so difficult, that it is with a sort of repugnance that I reckon it here among the resources of the art.

1258. To use a fillet beneficially, it must be applied to the groin, so as to embrace the upper part of the thigh : but how is it to be done ?

It is more easy to conceive than execute it. Having doubled the riband in the middle, the loop must be adapted to the end of the fore finger of one hand, as when we apply it to the bend of the ham. The finger must be insinuated above one of the child's hips, then bent over the groin, between the thigh and the belly, and advanced as far as possible towards the parts of generation. A proper crotchet must then be introduced between the child's thighs, directing it with the extremity of the thumb of the same hand which holds the fillet; the point of the crotchet must be turned towards the end of the finger which is armed with the riband, and we must contrive to hook the loop of it, and draw it out; but we are often not able to do it till after many trials, extremely fatiguing to the parts of the mother and of the child. When we succeed in applying the fillet in this manner, we are to use it as is prescribed in the presentation of the knees.

1259. We have already seen how the forceps were introduced into practice, in those labours where the child presents the breech. Though the application of that instrument is less difficult than that of the fillet, its manner
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of acting is very far from being so safe for the child: it appears so dangerous, that we ought never to make use of it, even if no other method existed, except when the child is dead. See the article quoted in par. 1251.

1260. Blunt hooks merit the preference in all these cases: many accoucheurs have proposed them before me. The facility of applying them, and the simplicity of their effects, compared with the difficulty of placing a fillet, and the dangerous consequences of using the forceps, ought to make us for ever proscribe them both.

1261. These hooks should be about an inch and a quarter long, rather round than flat, and terminated nearly in the figure of an olive: their stems must be about a foot long, and a little curved, that they may accommodate themselves to the convexity of the child's hips; and, besides, must be so formed, that one may easily be united to the other, and form, if needful, a kind of forceps. For want of these hooks, I have often successfully used those which terminate the handles of the forceps.

1262. One hook may suffice to extract the child's breech when it is engaged diagonally, provided we place it on that groin which is next

the *sacrum* of the mother; but when it presents in the third or fourth position, and is strongly wedged in the *pelvis*, as the obstacles to its exit are much greater, it may perhaps be necessary to apply two crotchets, in order to use them like a pair of forceps.

S E C T I O N III.

Of the Signs which characterize the different Species of Labour, in which the Child presents the Breech, and the Method of bringing down the Feet in those Cases.

1263. IN the first of these species of labour, the breech presents diagonally at the entrance of the *pelvis*; so that the child's left hip answers to the right *acetabulum* of the mother, and the right hip to the left *sacro-iliac symphysis*; the back being placed under the anterior and left lateral part of the *uterus*, and the breast turned towards the posterior and right lateral part of it. Of all the positions of the breech, this is the most favourable for its exit, whether it be performed without help or not.

1264. When

1264. When the circumstances which complicate the labour require us to bring down the feet, the accoucheur must search for them with the left hand, which he will introduce by sliding it up before the right *sacro-iliac symphysis*. He must first raise up the breech, if it has begun to engage, and direct it over the fore part of the left *iliac fossa*. Then insinuating the hand along the posterior part of the child's thighs and legs, if they should be extended towards the breast, he will find the feet, which he may hook with the ends of the fingers, a little bent, and bring them to the entrance of the *vagina*. He must then take hold of them differently, to bring them entirely down, and finish the delivery as if the feet had presented naturally in the first position.—See par. 1133, and following.

1265. In this case, as in many others, but particularly when the breech presents, provided the child be not very large relatively to the capacity of the mother's *pelvis*, we may content ourselves with bringing down one foot, if we find any difficulty in bringing down both. We need not fear that the other inferior extremity, if we bring down but one, should be stopped at the edge of the *strait*, so as to hinder the descent
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of the breech : but we must be careful to observe the precautions given in par. 1176, till it is without.

1266. In the second position of the breech, as in the first, it presents its greatest breadth diagonally at the entrance of the *pelvis* ; but so that the child's right hip answers to the left *acetabulum*, and the left hip to the right *sacro-iliac symphysis* ; the back being then under the anterior and right lateral part of the *uterus*, and the breast towards the posterior and lateral part of it.

1267. When the delivery cannot be terminated without help, if the extraction of the child by the feet becomes preferable to any other method, we cannot take hold of them more easily and more certainly than by introducing the right hand into the *uterus*, sliding it up before the left *sacro-iliac symphysis*, and along the child's thighs. Having brought them without, we finish the delivery as in the second species of the presentation of the feet.— See par. 1212, and following.

1268. The position of the breech which constitutes the third species, is such that the child's back answers to the anterior part of the *uterus* and the *pubes* of the mother ; the face

and breast being towards the posterior part, and consequently underneath.

1269. This position, which is much more rare than the preceding ones, would also be much less favourable to delivery, if the shoulders and head of the child did not almost always in the progress of the labour present themselves diagonally at the entrance of the *pelvis*. This is not however the idea that accoucheurs have had of it; for the greater part have taken this position for the best of all those in which the breech can present, and have not only endeavoured to keep the trunk and head in it as the child descended, but also to reduce all other positions to it. If they had more carefully observed the progress of Nature, they would have seen that it was very different; and that generally, in spite of their endeavours, the child's face turns to one side. Far from imitating them, we ought to favour this lateral *demi-tour* of the shoulders and head, by directing the breech obliquely as in the first and second positions.

1270. When it is necessary to search for the feet, we must introduce the hand towards the posterior part of the *uterus*, along the hind part of the child's thighs and legs. We first re-
move

move the breech from the superior *strait*, carrying it forward and over the *pubes*, and then take hold of the extremities. We might immediately make the breech describe the *demi-tour* mentioned in the preceding paragraph, if it did not appear better to wait for that till the feet are entirely disengaged.

1271. In the fourth position of the breech it is so placed, that the child's back is towards the lumbar column of the mother, while the face and breast are under the anterior part of the *uterus*. It is the least frequent and least favourable of all the four positions.

1272. In this case, Nature generally finds so many obstacles to delivering herself without help, that it is always better to remove the breech, and bring down the feet, when we arrive in time, than to abandon the woman to efforts, which might be useless, and besides augment the difficulties inseparable from this species of labour. We ought never to neglect this rule but when we are called too late to follow it. In that case, when the breech is, as it were, wedged at the bottom of the *pelvis*, we must endeavour to draw it down with the fingers applied to the groins, or with blunt hooks if circumstances require it : but in disengaging
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it then, we must observe to make it describe the *demi-tour* mentioned above, in order to begin to turn the face from over the *pubes*.

1273. In this species of labour it is very indifferent whether we introduce the right hand or the left into the *uterus*, to search for the child's feet. Either one or the other should be introduced in a state of supination, when the breech is engaged in the superior *strait*, in order to push it up more easily: we then direct the fingers united on one of the child's hips, and the thumb on the other, so as to enable us to grasp the lower part of the *trunk* firmly, and make it describe a quarter turn, or more if we can, to bring the back towards one of the *iliac fossæ* of the mother; that is to say, towards the right when we use the right hand, and *vice versa*. After that, we search for the child's feet by advancing the hand along the posterior part of the thighs, and bring them down, as in all the preceding positions.

C H A P. III.

Labours in which the Child presents the Crown of the Head at the Orifice of the Uterus.

1274. **T**HOSE labours, in which the child presents the crown of the head at the orifice of the *uterus*, would always be the most advantageous, if the laws of Nature in this function were immutable, if women were exempt from every species of accident, and if the proportion usually found between the diameters of the head and those of the *pelvis* were constantly the same: for the obstacles which obstruct these labours, or render them difficult and dangerous, proceed only from these three sources, united or separate.

ARTICLE I.

Of the Causes which may render those Labours in which the Child presents the Crown of the Head difficult or preternatural, and the Indications they prescribe.

1275. THESE causes, the greater part of which have been already explained, in as many particular sections, are very numerous. Those which proceed from the mother, depend on defects of the *pelvis*, on the want of sufficient strength to expel the child, and on accidents which supervene before, or during the course of labour. Those which depend on the child arise from the extraordinary size of the head, relatively to the *pelvis* of the mother; from the manner in which it presents at the entrance of that cavity; from the presence of a hand, or a foot, which hinders it from engaging in it; from the direction which the expulsive forces of the *uterus* impress on it; from the descent of the umbilical cord, &c *. In order to determine more clearly what I mean by bad posi-

* I do not speak here of those causes which absolutely require the help of instruments; I shall speak of them in the fourth part of the work.

tions of the head, and demonstrate the mechanism by which several of those positions may take place in the course of labour, I shall make them the subject of a particular section.

SECTION I.

Of bad Situations of the Child's Head in general, and particularly of that which it is sometimes forced to take as it advances in the Pelvis.

1276. THE position of the head is disadvantageous, though it present the *vertex*, whenever its greatest diameter is not placed parallel to the greatest diameter of the *strait* which it must pass: it will therefore be so when the *occiput* or the forehead shall be turned towards the *pubes* at the beginning of labour, or remain towards one of the *ischia* at the latter end. In all these cases, the position of the head will be so much more disadvantageous, as the woman's *pelvis* shall depart farther from a good conformation; and much more still, as the face shall have more propensity to turn towards the *pubes* in the last period of labour.—See par. 671, and following.

1277. Although

1277. Although the child's head present favourably at the entrance of the *pelvis*, the labour cannot be easy, unless in its descent it take the course which I have described in treating of the mechanism of the different species of natural labour. When it engages otherwise, its greatest diameters advance foremost, and present themselves in all their length to those of the inferior *strait*; sometimes in one direction, and sometimes in another: which generally renders its delivery very difficult, and sometimes impossible without help.

1278. When the head takes its natural course, it preserves its anterior flexion, and the chin remains against the upper part of the breast, till the base of the *occiput* come against the center of the arch of the *pubes*, or on the anterior edge of the perinæum, if the face come upward. But we observe the contrary in the case in question; the chin quits the breast, and the head turns backward as soon as it begins to engage; so that it is the anterior *fontanelle*, or the upper part of the forehead, which at last places itself in the center of the inferior *strait*.

1279. *M. Levret*, in one of his observations, gives us the most exact picture of this accidental bad position of the head: but, according

to that author, it proceeds from no other cause, than the oblique and lateral situation of the child's body, which he regards as the cause least known of all those which render labour difficult. "All the obstacles," says he, "which obstruct the exit of the child in the present instance, arise from this situation of the body exclusively; it is the shoulders stopped at the superior *strait*, which hinder the head from descending, whether Nature endeavours to expel it, or we attempt to extract it with the forceps, or otherwise" *. *De la Motte* and *Smellie* have not explained themselves so clearly concerning this disagreeable position of the head; but they have better pointed out the true indication which it offers.

1280. This position is the effect of the direction of the expulsive forces of the *uterus*, and of the manner in which they act on the head. We hardly ever observe the obliquity of the *uterus*, which is the determining cause of it, not to be on the same side to which the *occiput* answers. The direction of the expulsive forces in other cases is constantly such that they act

* See la seconde Observ. de M. Levret, sur les Causes & les Accidens de plusieurs Accouchemens Laborieux, 4^{me} edit. pag. 4.

on the head so as to make the occipital extremity descend; but in this, the direction of those same forces traverses the head obliquely from the base to the *vertex*, and from the *occiput* to the forehead, a little before the center of motion, and obliges it to turn backward in proportion as it advances. *M. Levret* attributed this effect to the lateral situation of the *placenta*, and to that of the child's *trunk* in the *uterus*, only because he thought that the lateral obliquity of that *viscus* always proceeded from the insertion of the *placenta* on one of its sides. By adopting the opinion of that celebrated accoucheur on this point, as well as concerning the other parts of this section, we should adopt a crowd of errors which he fell into, and in some measure partake the criticism, judicious in many respects, but too severe, which he has suffered for it *.

1281. *M. Levret*, almost the only one who has spoken clearly of this bad position of the head, has, in order to prevent it, recommended opening the membranes early, and searching for the child's feet, whenever the face presents on one side: but this precept, given with that confidence which can only be inspired by

* See la Pratique des Accouchemens, premiere partie, par M. Alphonse le Roy.

long practice, seems to have been a slip of its author's pen. It would be dangerous to follow it implicitly, as thousands of children, who would have met with but feeble obstacles to their birth, would be victims of such a procedure; for delivering by the feet is often attended with danger, and the face almost always presents on one side at the beginning of natural labours.

1282. *M. Levret* has not made a better use of his great knowledge, in the method which he has proposed to remove the difficulties which arise from this bad position of the head. Instead of endeavouring to correct it, and bring it to its true natural position, imagining it to be the shoulders retained, and, as it were, wedged in the superior *strait*, which obstruct delivery in this case, he has contented himself with recommending to remove them, and direct them according to one of the oblique diameters of the *strait*: “the face,” says he, “will afterwards turn of itself, either upwards or downwards, and the obstacles will cease.” No one will deny that the relation of the shoulders to the superior *strait*, in this case, may be such as to give some obstruction to the descent of the *trunk*, or even to the expulsion of the head; but

but most certainly the principal obstacle does not proceed from that cause : it proceeds only from the bad position of the head, from its being turned backwards, and presenting its greatest diameter to one of the diameters of the inferior *strait*, and because the uterine forces, directed as they then are, only tend to push the head forward in that same state ; since we need only reduce it to its natural position and course, to enable the woman to deliver herself. I have often demonstrated this truth to a great number of my pupils ; and it has not been without astonishment that they have seen labours terminate in a few minutes after this simple *deplacement* of the head, which had long resisted the most violent and best supported efforts of Nature. If I wanted other proofs in support of my opinion, I need only seek for them in the works of *Smellie*, *De la Motte*, and even in those of the celebrated *Levret* himself, though contrary to his assertion *.

1283. It is always pretty easy to prevent the head from taking this bad position as it engages in the *pelvis*, and make it follow its usual

* See the observations which I have stated in the introduction, to shew the necessity of perfectly understanding the mechanism of natural labour.

course: we need only change the direction of the uterine forces in proper time, and support the anterior part of the head a little while, to make the occipital extremity descend. We must then, in great obliquities of the *uterus*, begin by rectifying that *viscus*, and bringing its axis nearly parallel to that of the *pelvis*; either by causing the woman to lie on the side opposite to the deviation, or by making a convenient pressure on the belly. Then, by means of several fingers introduced into the *vagina*, we must support the child's forehead, during each pain, in order that the natural efforts, whose direction is no longer the same, may act on the *occiput*, and force it down. But in doing this, we ought carefully to avoid pressing on the anterior *fontanelle*, or its environs, where the bones are very supple, lest the child be destroyed by their depression, and the consequent injury to the brain, which however cannot be very great if we act methodically.

1284. We must act in the same manner to rectify the position of the child's head, and reduce it to its natural course, when we have not been able to prevent the bad situation in question. The woman being laid on the side opposite to the deviation of the *fundus*, we must push
up

up the forehead as much as possible during the pain *, and with the precautions already recommended. If we should not succeed completely in this manner, we must introduce the fore and middle fingers of the other hand above the protuberance of the *occiput*, to assist its descent, by pulling downwards, as if we were making use of a crotchet.

1285. It is so rare that we cannot by this double action bring about the necessary change, or convert the bad position of the head into a better, that it might seem useless to prescribe any other methods : but however, as the head may be so wedged between the bones of the *pelvis*, that the fingers may not be able to penetrate above the *occiput*, I shall mention this case again in the sequel, when I treat of those labours, in which the lever, commonly called *Roonhuisen's*, may be of some use †.

1286. The

* I would recommend pushing up the forehead during the pain, and not during the calm which follows it ; because the efforts of Nature, whose direction we have changed, by changing the position of the *uterus*, act on the *occiput*, and force it down as they do in a natural labour, which we greatly assist by pushing up the forehead at the same time.

† This case, according to *M. Levret*, is the only one in which *Roonhuisen's* lever may be employed with advantage. That

1286. The head almost always passes the *pelvis*, and the labour terminates with the first pains which come on after we have corrected the position, at least if no other causes obstruct it. But if circumstances require it, we may use the forceps, or act differently according to the nature of the case.

SECTION II.

Of the Indications in those Labours in which the Child presents the Crown of the Head, when complicated with Circumstances that render them difficult.

1287. THE greater part of the causes stated in par. 1275, present different indications in some respects, not only according to their

author, whose views concerning the bad position of the head, which is the subject of this section, are no longer the same, when he discusses the advantages and inconveniences of *Roonhuisen's* lever, proves by this contradiction of himself, that prejudice does not always cloud the mind and judgment of a good observer. See *M. Leuret, Suite de ses Observations sur la Cause des Accouchemens Laborieux*, edit. 4^{me} pag. 192, & suiv.

species, and their violence, but also according as they manifest themselves sooner or later in the course of labour.

1288. Though we have often little to do, to dissipate the danger arising from some of these causes, to remove the obstacles which they produce, and enable the woman to deliver herself without farther help ; often also we are obliged to remove the head, turn the child, and extract it by the feet, or to deliver with the forceps, or some other instrument.

1289. When the head presents its greatest length to the small diameter of a *pelvis* rather narrow from *pubes* to *sacrum*, we have no other indication to fulfil, than to remove it, and place it in a better position, as directed in par. 830, and following. When this faulty position only takes place at the inferior *strait*, we proceed in the same manner, with this difference, that we direct the length of the head according to the diameter which goes from the *pubes* to the *sacrum*. If the presence of a hand, or a foot, opposes the descent of the head, we must push them up above it, and return them into the *uterus*, unless some other circumstances require us to act differently *. Lastly, we must correct

* See par. 1522, and following.

the defective course of the head, when it deviates from that which I have traced, in treating of each species of natural labour.

1290. Whenever a violent flooding, or any other serious accident, happens in the course of labour, we ought to deliver immediately; but in different ways, according as the labour shall be more or less advanced at the instant when the operation becomes indispensable. If the child still preserves all its mobility above the entrance of the *pelvis*, or if it be but just beginning to engage in that *strait*, and the waters have not been long discharged, we ought to turn and extract it by the feet. But if the head has descended half its length, especially if the waters have been some time evacuated, it is better to use the forceps. That instrument merits the preference much more still, when the head occupies the lower part of the *pelvis*, and must be employed exclusively, whenever it has cleared the neck of the *uterus*, and is entirely in the *vagina*; for then no other method can save the child.

1291. Nothing but the want of the forceps, which we cannot always procure immediately, can justify pushing back the head, in order to extract the child by the feet, when it is entirely

tirely descended into the cavity of the *pelvis*; and even then it ought to have passed the superior *strait* easily, pushing down before it the circle which then constitutes the neck of the *uterus*; as we generally observe in women who have the entrance of the *pelvis* very large, and in whom the uterine circle in question retains some degree of rigidity. This method, though contrary in appearance to the opinion of some authors, who maintain that it is impossible to turn the child when the head is so low, is far preferable to the crotchets which the greater part of them use at this day in similar cases, if they have the smallest suspicion of the child's death.

1292. It is of no consequence that some will rise up against the precept I have given on this subject, and endeavour to persuade us that the head cannot, in this case, be pushed back, without extreme danger to both mother and child; they will intimidate none but young practitioners of moderate skill, and will not be able to shake that confidence which, from repeated success, I feel myself entitled to inspire them with. The child's head might be pushed back with as little inconvenience, even if it were much lower, provided that it be enveloped in
the

the neck of the *uterus*, as I have said before, and that its orifice be still below the *vertex*.

1293. I have before remarked, in par. 642, that the head might occupy the lower part of the *pelvis*, without having cleared the orifice of the *uterus*, and that it was important to distinguish this case accurately from that in which it is entirely in the *vagina*. Though in the former case there is no more inconvenience in pushing up the head above the superior *strait*, and turning the child, than in that where it is but little advanced, every thing with respect to the conformation of the *pelvis*, the contraction of the *uterus*, &c. being the same, there would be a great deal when it has cleared the neck of that *viscus*, and is entirely in the *vagina*. By pushing it up then above the brim, we should run the greatest risk of tearing the *vagina* from its connection with the *uterus*, &c. The forceps are exclusively indicated in this circumstance, as I have already said, unless the certainty of the child's death permit us to use crotchets: and I should prefer them in the other, because their application is simple, and their effects quicker and more certain, than those of turning the child.

1294. The accidents stated in par. 1079,
such

such as flooding, convulsions, frequent *syncope*s, an exhaustment of the woman, and the exit of the umbilical cord, &c. are not the only causes which may reduce us to the necessity of turning a child who presents the crown of the head: a deformity of the *pelvis* sometimes prescribes the same indications. Almost all those who have advised and practised it on account of this last circumstance, have done it without any regard to the extent of the disproportion between the dimensions of the child's head and those of the *pelvis*; so that for one child they have saved by this method, a great number have been victims to it. This method cannot be proper but in those cases where the disproportion which obstructs delivery is very small: when it is more considerable, it requires the forceps, crotchets, the Cæsarean operation, &c. according to the state of the child, as we shall see in the sequel.

1295. It is not only with a view of assisting the expulsive powers of the woman, by pulling at the feet, and other parts which precede the head, that we ought to undertake to turn the child, when the deformity of the *pelvis*, though very slight, does not permit the head to engage, though many accoucheurs do it with no other intention.

intention. The particular structure of the head indicates on what principle we ought to operate thus. That structure is such, that its thickness diminishes more easily, and it engages with greater facility, when the child comes by the feet, if it be well directed, than when the head comes first: though a great number of accoucheurs think the contrary, and are of opinion that it then presents its greatest breadth to the *straits* of the *pelvis*.

A R T I C L E II.

Of the Method of turning the Child to bring it by the Feet, when it presents the Crown of the Head.

S E C T I O N I.

General Rules.

1296. WHEN we are obliged to turn a child who presents the crown of the head to the orifice of the *uterus*, the membranes are entire,
or

or not, and the waters recently discharged, or a long time ago. In the former case, the child is in some measure free in the midst of the *uterus*; and in the latter, it is so closely embraced by it, that the hand cannot penetrate it without difficulty, even when well directed. It is in the latter state that I shall suppose it to be, because it requires more sagacity on the part of the accoucheur than the other case, and because he cannot then neglect the following rules, without exposing both mother and child to great inconveniences.

1297. The woman being placed conveniently, we must introduce the right or left hand into the *uterus*, according to the position of the head. We must then disengage it from the superior *strait*, if it be engaged in it, by pushing it upward and forward, to make it follow the direction of the *strait*. We then apply the hand to the forehead, and carry the head towards one of the *iliac fossæ*, where it must be retained during the operation, by means of the wrist and the fore-arm, to hinder it from being forced downward again by the pains, while we search for the feet.

1298. In order to find the feet, and bring them

them down more easily, having removed the head sufficiently from the superior *strait*, we must insinuate the hand along that side of the *trunk* which is nearest the posterior part of the *uterus*. We first pass the fingers close together over the ear, from thence over the side of the neck, but a little backward, in order to avoid the projection of the shoulder; we then conduct them gently along the side and hip, from whence we pass along the thigh and leg to the feet. We hook the feet with the ends of the fingers a little bent, and bring them to the entrance of the *vagina*, making them pass over the breast and face of the child. When we can take hold of but one foot at once, we must take that which belongs to the side that the hand has passed over; unless it be engaged in the bend of the ham of the other leg, as we sometimes meet with it; for then we must begin by bringing down the foot of that leg first. As soon as we have brought one foot out of the *uterus*, we must introduce the hand again to search for the other, either by tracing the same course as before, or along the back of the extremity already brought down, according to the difficulty or facility we meet with: which will

will be more precisely determined by laying down the rules which relate to each particular case.

1299. By strictly observing the route which I have just laid down, we shall avoid taking the child's shoulder for the hip, the elbow for the knee, and the hand for the foot; which it is not always very easy to distinguish, when the hand that operates is strongly pressed in the *uterus*: for all these extremities will present themselves successively to the fingers, and not *pell mell*, as we generally meet with them, when, according to the advice of most accoucheurs, we pass the hand along the child's breast. Besides, by following that course, the feet are almost always found against the back of the hand, and we can neither distinguish them, nor take hold of them; so that sometimes we search for them far off, when they are very near: add to that, that we remove the child's arms from the axis of the *trunk*, and render the turning it more difficult. By the first method, on the contrary, we bring all those parts to a common center, we roll the child up, as I may say, like a ball, and turn it with greater facility.—See the paragraphs 1158 and 1161.

1300. Some practitioners, in whom strength seems to supply the place of knowledge, most frequently content themselves with bringing down one foot, whether the child present the crown of the head, or any other part. But though they sometimes perform the delivery by pulling only at one extremity, sometimes also, after having luxated, fractured, and even torn it off, they are reduced to the shameful necessity of searching for the other. At most, it is only when the waters are but just drained off, and the *pelvis* is of the natural size, that we may dispense with searching for the second foot, and undertake to deliver by one: but that is precisely the case in which there is the least trouble in bringing down both at once.

1301. When we find much difficulty in bringing down the feet, if we can bring one out, or only to the *vulva*, we must fix a fillet on it, to keep it down while we search for the other.

1302. When we have brought both feet to the orifice of the *uterus*, it is not always without a great deal of trouble that we are able to bring them down; either because it is difficult to grasp them both with one hand, or because the head is still retained in the neighbourhood
of

of the superior *strait*, and cannot of itself recede sufficiently to allow the breech to engage in it. Though it is necessary in that case, in order to obtain the proposed end, to remove the head, yet we are not always able to do it conveniently with the same hand which holds the feet; because we are sometimes obliged to pull them down, at the same time that we push the head back: which happens more particularly when the waters have been long evacuated, and much more still in some other presentations. But as it is impossible at once to pull down the feet, and push back the head with the same hand, and not less so to introduce both hands together into the *vagina*, in order to apply one to the head and the other to the feet, we place a fillet on one of the latter, to bring it down by pulling at a distance, while with the other hand, introduced at the entrance of the *uterus*, we remove the child's head from the superior *strait*. By acting thus, a moderate force will suffice to overcome an obstacle, which that of several persons united, applied to the feet only, would often scarcely be able to surmount*.

* I could prove this assertion by a great number of cases, if I were not restrained by the fear of hurting the feelings of those persons of the profession who have furnished me with the opportunities of collecting them.

1303. It is never necessary to apply a fillet on each foot, nor to enclose both feet in one fillet: it is sufficient to apply it to one, and we generally place it on that which is next the *pubes*.

1304. To apply the fillet, we double it in the middle, and pass the two ends through the loop, so as to form a kind of slip knot. It is easy to pass it over the foot as far as the ankle, when it appears at the *vulva*; but very difficult, when it is still high up in the *pelvis*. In that case, some practitioners slide the loop of the fillet over the hand, on the wrist, and introducing the same hand into the *vagina*, take hold of the foot, and slip the loop over it, by pushing it forward with the fingers of the other hand, tightening it more or less by pulling the two ends which hang without. Others have used a pair of small forceps for applying the riband to the foot; or an instrument designed to convey ligatures to a great distance. A *port-fillet* for the foot would not be very difficult to contrive: but it would make a needless augmentation in the number of our instruments, which is already too great.

SECTION II.

Of the distinguishing Signs of the first, second, and third Species of preternatural Labour, in which the Child presents the Crown of the Head, and the Manner of turning the Child in those Cases.

1305. I SHALL here only just repeat the characteristics of that position of the head which constitutes the first of these species of labour, having already treated of them sufficiently at large in another place. That position is such, that the *sagittal suture* crosses the *pelvis* obliquely, from the left *acetabulum* to the right *sacro-iliac junction*; the forehead being before the latter, and the *occiput* behind the former.

1306. Though it may seem indifferent to some, whether they introduce the right or left hand into the *uterus*, to turn the child, immediately after opening the membranes, when the head presents in this position, yet, when the waters have been long evacuated, it is so important to use the left, that to the want of attention to this circumstance we may attribute all the difficulty in getting hold of the feet, as well as that apparent impossibility of

doing it, which has often obliged the operator to withdraw his hand twenty times before he could accomplish it *. If the left hand is so necessary in the latter case, it cannot be denied that it is preferable to the right in the former; for in both, the left hand has much less ground to go over than the right, to arrive at the feet †, and with that we may bring them down in the most natural direction, and turn the child in the most favourable manner: which it is almost impossible to execute with the right hand,

* I have been an eye witness of what I advance: two accoucheurs, who were doubtless habituated to operate only with the right hand, conveyed it by turns into the *uterus*, so high, that their elbow was hid in the *vulva*, without being able to touch the feet. I was not permitted to operate till they were in some measure exhausted by fatigue. Knowing the position of the child better, I only introduced the left hand as far as the wrist to take hold of the feet; and in less than two minutes, I performed what they had not been able to do by an obstinate and alarming perseverance for two hours.

† The ground which the left hand must go over, is so much the shorter, as the waters have been evacuated a longer time, and as the action of the *uterus* has rolled the child up into a rounder figure; while the course of the right hand, on the contrary, becomes so much the longer. This is so evident a truth, that I am persuaded no person will require a proof of it.

especially

especially when the waters have been long evacuated, as may be clearly demonstrated on the machine.

1307. We ought then always to make use of the left hand, to turn the child, in this species of labour. We must introduce it nearly in a middle state, between that of *pronation* and *supination*, that is, with the thumb towards the *pubes*; then remove the head from the superior *strait*, directing it over the fore part of the left *iliac fossa*, where it is to be retained with the wrist and fore-arm, while we search for the feet, by tracing the left side of the child, in order to bring them down in the manner already explained.

1308. After having brought down the feet as far as the middle of the *vagina*, we must again remove the head from the superior *strait*, in order to favour the conversion of the *trunk*, and make the feet descend more easily. If we cannot bring them together beyond the middle of the *vagina*, on account of the difficulty of grasping them both with one hand, we must quit one of them, and search for it again when the other is disengaged.

1309. As soon as the feet appear without, we must pull almost entirely, but for an instant

only, on that which is under the *pubes*. By that means we favour the descent of the breech, we often avoid some difficulties, and constantly turn the child's breast towards the left *sacro-iliac junction*; so that the *trunk*, as it descends, places itself in the same manner as in the second species of the presentation of the feet. The rest of the operation must be conducted as in that species.—See par. 1212, and following.

1310. The position of the head, which constitutes the second species, will appear the same as the preceding, if we only consider the proportion between the dimensions of the head and those of the entrance of the *pelvis*; since in both the *sagittal suture* crosses that *strait* obliquely. The difference between them is, that in this second position the *occiput* answers to the right *acetabulum*, and the forehead to the left *sacro-iliac junction*.

1311. In this position, when it is necessary to bring the child by the feet, we must introduce the right hand into the *uterus*; its advantages over the left hand will be in proportion to the time elapsed since the evacuation of the waters. We should find as much difficulty in operating with the left hand in this case, as with the right in the former. We
begin

begin in the same manner, by pushing the head above the entrance of the *pelvis*, if it be engaged in it; and by directing it, at the same time, over the right *iliac fossa*, where it must be kept, while we search for the feet, along the right side of the child.

1312. As soon as the feet are without, we pull with a little more force on the left, which is then under the *pubes*, as well to facilitate the descent of the breech, as to oblige the breast to turn towards the right *sacro-iliac junction*, and place itself as in the first species of the presentation of the feet.—See par. 1205, and following.

1313. In the third species of labour, in which the child presents the crown of the head, the *sagittal suture* crosses the entrance of the *pelvis* directly from before backwards, so that the *occiput* answers to the *pubes*, and the face to the *sacrum*.

1314. This position, of itself, may render labour difficult or preternatural, independently of any other cause, when the woman's *pelvis* is not perfectly of the natural size; because the largest diameter of the head presents parallel to the smallest diameter of the superior *strait*, and
in

in the direction in which that *strait* is the ofteneft contracted : but when the *pelvis* is well formed, this pofition may be as favourable for delivery as the preceding ones. The indication which it presents in the former cafe, is eafily deduced from what has been faid of the relation of the dimensions of the head to thofe of the *strait*. We muft remove the *occiput* from over the *pubes*, and direct it towards one of the *acetabula* : the fingers introduced into the *vagina* are commonly fufficient to procure this change, provided we attempt it early.

1315. When any of thofe circumftances occur, which require us to turn the child and bring it by the feet, either hand may be introduced into the *uterus*, with equal advantage, provided the accoucheur be accuftomed to ufe them equally. We muft flide it up, along the *sacrum*, till we can grasp the forehead, and a part of the reft of the face. We then give the head a quarter turn, fo as to place the face on one fide ; and we muft remember afterwards to do the fame by the *trunk* ; becaufe the firft movement is confined to the head, and is effected only by a twift of the neck. When we ufe the right hand, we turn the face towards
the

the woman's left side, carrying the head towards the right *iliac fossa*, and *vice versa*: and then finish the delivery, as in the first and second species, according to the hand we have made choice of.

S E C T I O N III.

Of the Signs of the fourth, fifth, and sixth Species of Labour, where the Child presents the Crown of the Head, and the Method of operating in all those Cases.

1316. IN the fourth and fifth of these species of labour, the child's head presents diagonally at the entrance of the *pelvis*; but so that in the fourth the *occiput* answers to the right *sacro-iliac symphysis*, and the forehead to the left *acetabulum*; whereas in the fifth the forehead is situated behind the right *acetabulum*, and the *occiput* opposite the left *sacro-iliac symphysis*.

1317. I have observed in paragraphs 671, 699, and following, that labour is, in general, more difficult when the child's head presents in either of these positions, than in the former:

because in these the face almost always turns under the *pubes*. But it is very rare, when the *pelvis* is well formed, that this circumstance alone obliges us to turn the child; either because the head can pass it, though with a little more difficulty, or because the obstacles, which result from these positions, do not manifest themselves till the head is low in the *pelvis*, and when it is too late to push it back and search for the feet, the forceps being then much more eligible.

1313. If the head cannot disengage in this position, in which the forehead answers to the arch of the *pubes*, we must make use of the forceps: but if other circumstances, independent of this position, invite us to deliver sooner; especially if they manifest themselves while the head is free above the *pelvis*, we ought to deliver by the feet. The method of turning the child, when the crown of the head presents in the fourth position, is exactly the same as for the second; and in the fifth position we proceed as in the first. See the paragraphs 1307 and 1311, where I treat of those two species of labour.—I shall only observe here, that in these two species of labour especially, the accoucheur must pull almost entirely at the foot which

which is under the *pubes*, from the time they both appear without; that is to say, at the left foot in the fourth species, and at the right in the fifth; in order to bring down the breech more easily, and at the same time to turn the breast towards one of the *sacro-iliac symphyses*.

1319. In the sixth species of the presentation of the crown of the head, the forehead answers to the *pubes* in every period of the labour, and the *occiput* to the *sacrum*.

1320. This species of labour, considered as a natural one, unites all the difficulties essential to the third, fourth, and fifth species; for the head presents its largest diameter to the smallest one of the brim, and the face constantly places itself under the *pubes*.

1321. In order to shorten the labour, which in this case is always very tedious, even when the *pelvis* is of the natural size, we ought to turn away the *occiput* from over the projection of the *sacrum*, as soon as the membranes open, if we are called in time, and bring it insensibly towards the arch of the *pubes*, in proportion as the head advances in the *pelvis*: but we must never attempt this change of position when the head is entirely in that cavity; for it would not then be without very great force, that the
face

face could be conducted from under the *pubes* to the *sacrum*; and as that *deplacement* could not be executed without an extraordinary twist of the neck, it would be very dangerous to the child, if it did not kill it instantly.

1322. When the *pelvis* is a little narrow, especially if any accidents occur, if the head can still be easily pushed back, we may turn the child, and bring it by the feet: otherwise we must use the forceps. In the former case, we may introduce either hand into the *uterus*; we first apply the fingers to one of the sides of the head, and the thumb to the other, in order to grasp it with sufficient strength to turn the face on one side; that is to say, towards the left side, if we use the right hand, and *vice versa*. After having removed the head in this manner, and reduced it to one of the two first positions, we continue to advance the hand in order to take hold of the feet, in the manner prescribed in those positions. Only we must observe, as we proceed, to turn the child's breast the same way as the face, and make the *trunk* perform the same movement as was given to the head at first. Then finish the delivery as in the preceding species.

C H A P. IV.

Of those Labours in which the Child presents the Face, the Fore Part of the Neck, the Breast, the Belly, and the Fore Part of the Pelvis and Thighs.

A R T I C L E I.

Labours in which the Child presents the Face.

1323. **AUTHORS** furnish us with a great many examples of labours in which the child presented the face to the orifice of the *uterus*, and I could have added a pretty large number to them; because those labours are not extremely rare. But most of those authors are so diffuse, that we can scarcely comprehend them; and far from pointing out the conduct which ought to be pursued in these cases, their contradictory precepts can often only serve to lead young practitioners out of the way. All that we can perceive through this obscurity, is,
that

that among the women, whose children presented thus, some have been delivered without help, and the labours of others have been extremely laborious.

S E C T I O N I.

Of the Causes, Signs, and Differences of Labours in which the Child presents the Face, and the Indications they prescribe.

1324. ALMOST all those who have mentioned this bad position of the child, have attributed it to an obliquity of the *uterus*; and we cannot deny that that obliquity may be, at least, a remote, or predisposing cause of it. But whatever may be the kind or degree of that deviation, the face hardly ever presents at the beginning of labour: at first, the top of the forehead presents, and the face only advances as the contractions of the *uterus* are repeated.

1325. Those who have perfectly comprehended what I have said in par. 1278, and following, concerning the mechanism of the bad situation the head sometimes takes as it advances in the *pelvis*, when it presents the *ver-*
tex,

tex, will not be at a loss to explain why the face may present; and they will also clearly conceive whence the difficulties arise which then obstruct delivery, or, at least, always render it extremely long and laborious.

1326. We easily discover the face, by touching the woman immediately after the opening of the membranes; because the signs which distinguish it are not then obscured by the tumefaction which arises soon afterwards: those distinguishing signs are, the nose, the mouth, the chin, the edges of the orbits, and the *suture* which runs along the forehead.

1327. I shall distinguish four species of labour, in which the child presents the face, relatively to four principal positions which that region may take with respect to the *pelvis*.

1328. In the first, the length of the face presents along the smallest diameter of the superior *strait*, the forehead is situated over the *pubes*, and the chin answers to the *sacro-vertebral* angle.

1329. In the second position, the length of the face presents also parallel to the smallest diameter of the entrance of the *pelvis*: but the chin is behind the *pubes*, and the forehead before the *sacrum*.

1330. In the third, the face is situated transversely with respect to the *pelvis*, so that the forehead answers to the left side of it, and the chin to the right.

1331. In the fourth species, the situation is exactly contrary, the forehead being placed towards the right side, and the chin to the left.

1332. These four positions are not equally frequent; the two latter are the most common, though even they are very rare, if we consider them relatively to some of the other positions which have been already described.

1333. These labours ought to be accounted preternatural, independently of the accidents which may render those so in which the child presents in the most advantageous manner. For them to be terminated without help, it is requisite that the head should be very small, and the mother's *pelvis* at the same time very large; otherwise they become very long and difficult; the children are born with the face tumefied and livid, and almost always deprived of life, or ready to lose it, on account of the *engorgement* of the brain.

1334. The obstacles which generally oppose delivery in these cases, the difficulty which a woman finds in delivering herself without help,
even

even in the most favourable circumstances, as well as the danger which then threatens the child, seem to call upon us in all of them, to come to the assistance of both.

1335. The most general indication in these labours, is, to rectify the child's head; that is to say, to make the face ascend, and bring down the *occiput*, so as to reduce the *vertex* to its usual situation. When we cannot so happily second the efforts of nature, either because we are called too late, or because accidental circumstances require instant delivery, we are obliged to turn the child, and bring it by the feet, or extract the head with instruments, if it be far advanced, and wedged in the *pelvis*.

1336. According to some, it is losing precious time to endeavour to change this bad position of the head to a better, because, say they, we so rarely succeed in it: but if we succeeded still more rarely, we ought never to neglect the attempt, because of the advantages the child may reap from it, if we accomplish it, and the danger which often accompanies the other methods of delivering.

1337. When we propose to reduce the head to its natural position, it is not so much on the

face that we ought to act, by pushing it up, as most accoucheurs have advised, as on the *occiput*, which we ought to endeavour to hook with the fingers, to bring it downwards. Experience authorizes me to say that that may be executed without much trouble, when the head is moveable at the entrance of the *pelvis*, or capable of being easily pushed back to it: but it is always difficult, and often impracticable, when it is low down, and wedged tight; because the fingers can no longer penetrate far enough to grasp the *occiput* properly; and supposing that they could, the head cannot then make the movement necessary to lower its occipital extremity; as, in that movement, it must present foremost a diameter of five inches and a quarter, or thereabouts, without reckoning the thickness of the fingers which operate. A lever more curved, and broader than that which is in use among us, might sometimes be advantageously employed in these cases.

1338. If then we find nature strong enough to perform the delivery, we ought to endeavour to reduce the head to a good position: but in the contrary state, we must turn, and deliver by the feet, unless other circumstances forbid

forbid it, and require the use of the lever, or forceps, as will be more particularly stated in the sequel of this work *.

S E C T I O N II.

Methods of operating in the different Species of Labour in which the Child presents the Face, when it can be done with the Hand alone.

1339. THE first of these species of labour is one of the most seldom met with; and the position which constitutes it is very far from being one of the best. That position is such, that it can seldom be reduced to one of those which would favour the exit of the head; because the hand cannot be conducted directly on the *occiput* to bring it down, as in the following positions. In order to reduce the head to its natural situation in the present case, we must push up the face by means of the fingers placed on each side the nose, which, however, is not without inconvenience to the child, even supposing little force to be necessary; or

* See the article which treats of the lever, in the IVth Part.

else we must begin by changing the position of the face, and directing it transversely with respect to the *pelvis*, that we may afterwards apply the hand to the occipital region, as prescribed for the third and fourth positions. These manœuvres not being easy to execute, even at the instant the membranes open, with much more reason ought we to have little confidence in them, when the head has already cleared the superior *strait*, and occupies the cavity of the *pelvis*. It is almost always indispensable in the first position of the face, to turn the child and bring it by the feet.

1340. To do that, we may use either hand with equal advantage. It must be introduced along the *sacrum*, with the palm upwards, till the extremities of the fingers united reach the child's chin ; we then separate the fingers to grasp the lower part of the face more exactly, and push it up, advancing the hand a little farther into the *uterus*. We then carry the head into one of the *iliac fossæ*, into the right if we use the right hand, and *vice versa* ; observing to turn the face at the same time towards the other side, so that it may be next the hand which operates, as I have recommended in the third and sixth species where the crown
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of the head presents. After that, we search for the feet, in the same manner as is there directed.—See paragraphs 1315 and 1322.

1341. If we may hope to bend the child's head forward on the breast, and bring the *vertex* to the entrance of the *pelvis*, when the face presents in the second position, we can scarcely expect to reduce it entirely to its natural situation; except perhaps at the instant the membranes open, and even then it could not be done without great difficulty. But this change is no longer possible, and even to attempt it would be dangerous when the waters have been long evacuated. If we determine to try it in the first moments, we must advance the hand along the *sacrum* and posterior part of the *uterus*, till the fingers can grasp the *occiput* sufficiently to bring it down, and by that means force the face to ascend: we ought, at the same time that we bring down the *occiput* thus, to turn it towards one of the *acetabula*, in order to direct it insensibly afterwards, under the arch of the *pubes*.

1342. When we meet with too much difficulty in this enterprize, or when circumstances require that we should turn the child, and extract it by the feet, we may introduce either

hand into the *uterus*. We first disengage the head from the superior *strait*, pushing it up properly; we then take hold of it, so as to enable us to turn the vertex from over the projection of the *sacrum*, and direct it towards one of the *iliac fossæ*; that is to say, towards the right when we use the right hand, and *vice versa*. After giving this transverse position to the head, we insinuate the hand along one of the child's sides, to search for the feet, and finish the delivery according to the rules prescribed for the sixth species where the crown of the head presents.—See par. 1322.

1343. When we have no other indications to fulfil in the third species of the face presentations, than that of reducing the head to its natural situation, we must introduce the right hand towards the left side of the *pelvis*, till we can bend the fingers over the *occiput*, to bring it down by pulling it towards us. If the head is low down in the *pelvis*, without however being wedged tight in it, so that we cannot advance the fingers far enough on the *occiput*, we must push up the head, or else endeavour very carefully to raise up the face, by means of the fingers of the left hand applied to the upper jaw, and at the sides of the nose. If we can thus
push

push up the lower part of the face, we give the other hand more liberty to act on the *occiput*; but as we cannot act too cautiously on the face, lest we bruise and hurt it, if we find any difficulty in it, it is better to push up the whole head, and then endeavour to bring down the *occiput*,

1344. When we are obliged to turn the child, whether we have reduced the head to its natural position or not, we must proceed as in the first species where the crown of the head presents. We introduce the left hand into the *uterus*, directing it along the child's left side, till we can take hold of the feet.—See par. 1307.

1345. The fourth species of labour in which the face presents, differs little from the preceding with respect to the mode of operating; except that we must execute with the left hand all that is there prescribed for the right, and *vice versa*. For example, if we would change the position of the head to a better, we must introduce the left hand at the right side of the *pelvis*, to hook the *occiput*, which is over that part, and bring it down: but we use the right hand when it is necessary to turn the child, and extract it by the feet. We must be-

sides observe the precautions already given, and when the feet are without, finish the labour as when the head presents in the second position.—See par. 1311*.

A R T I C L E II.

Labours in which the Child presents the Fore Part of the Neck, commonly called the Throat.

1346. FROM the silence which most authors have observed concerning those labours in which the child presents the anterior part of the neck, we may infer that they are extremely rare: *De la Motte* is almost the only one who has mentioned them, and he has cited but two cases.

* Some authors mention labours where the child presents the forehead; and one of them even adds that they are more troublesome than those where it presents the face: but that assertion is absolutely false. As these labours are comprehended in what I have said of the bad situation the head sometimes takes as it advances in the *pelvis*, the paragraphs 1278 and following may be consulted.

SECTION I.

Of the Causes, Signs, and Differences of those Labours in which the Child presents the Fore Part of the Neck, and the Indications they present.

1347. THESE labours have so much relation to those which make the subject of the preceding article, that we may look on them as the effect of the same causes. We may easily conceive why the fore part of the neck, rather than any other region of the child's surface, should place itself at the entrance of the *pelvis*, when we consider that, at the instant the membranes open, the longest diameter of the child's body may be so inclined with respect to the axis of the *pelvis*, that the forehead may rest on the edge of the superior *strait*, at the side opposite to the obliquity; for in that case, the contractions of the *uterus* tend almost entirely to turn the head backwards, and advance the region in question; except the face itself present.

1348. This inclination of the longest diameter of the child's body, with respect to the axis
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of the mother's *pelvis*, may be the consequence of an obliquity of the *uterus*, or only of the great quantity of water contained in it. If these causes, which are often united, do not constantly force the anterior part of the neck to present, it is because the situation of the child, at the instant the waters are discharged, is not always the same with respect to the brim of the *pelvis*.

1349. We see clearly why the child who presents the fore part of the neck cannot be born without help. The obstacle then arises from the disproportion which exists, between the cavity of the *pelvis*, and the volume of the parts which endeavour to engage in it at the same time, that is to say, the head and the breast.

1350. It is not till the opening of the membranes, and even some time afterwards, that we can distinguish the fore part of the neck; because the characteristic signs of that region, which before that time we can only touch very superficially, are not very sensible to the touch; and because those which might dissipate all uncertainty are often still distant from the circle which the end of the finger can then trace. These latter signs are the chin, and the
top

top of the breast, which is clearly denoted by the notch of the *sternum* and the *clavicles*.

1351. The fore part of the neck does not always present in the same manner: we find in one of the two cases communicated by *De la Motte*, that the chin was hitched on the *pubes*, and that it answered to the *sacrum* in the other. Although no one has spoken very clearly of transverse positions of this region, or a little diagonal; yet it seems, that they should be more frequent than the others, because the parts of the child accommodate themselves much better then to the entrance of the *pelvis*. I shall reduce all these positions to four principal ones.

1352. In the first, the length of the neck is placed along the smallest diameter of the superior *strait*, so that the lower part of the face rests on the *pubes*, and the top of the breast on the projection of the *sacrum*.

1353. In the second, it is the breast which is over the *pubes*, and the face towards the *sacrum*; but a little on one side, on account of the projection of the latter, and of the *lumbar column*.

1354. In the third position, the neck is placed transversely, so that the head rests on the

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the fore part of the left *iliac fossa*, and the breast on the right.

1355. In the fourth position, the child is also placed across, but so that the breast is situated over the left *iliac fossa*, and the head over the right.

1356. These four positions, which constitute so many species of labour, are equally disagreeable for the child. It cannot be born thus, with the head turned on the back; and the danger which threatens it, is proportioned to the force and duration of the pressure which it suffers from the *uterus*, after the evacuation of the waters.

1357. The general indications presented by this kind of labours, relatively to the mode of operating, may be reduced to the two following: to bring the child's head to the natural situation, or search for the feet; but it is always so difficult to accomplish the first of these indications, even in the most favourable circumstances, that I would never advise it to be attempted.

S E C T I O N II.

Method of operating in the different Species of Labour in which the Child presents the Fore Part of the Neck.

1358. IN the first of these species of labour it is always necessary to search for the child's feet, and turn it. We may introduce either hand into the *uterus* : it must first be insinuated underneath, as far as the child's breast ; then, if we operate with the right hand, we direct the fingers, a little bent, on the child's right side and hip, to grasp the *trunk*, so as to make it turn on its axis, and bring its anterior part as much towards the woman's left side as possible. After that we search for the right foot, and bring it to the *vulva*, where, if we think proper, we may keep it, by means of a fillet, while we pass the hand again into the *uterus* to search for the other. As soon as they are both without, we pull a little stronger on the first, for a few seconds, and then equally on both ; observing at the same time to press gently with the other hand, on that part of the woman's belly which answers to the child's head, to assist in pushing it up. When we introduce

introduce the left hand into the *uterus*, we direct the fingers towards the child's left hip, passing obliquely under the breast, which we must endeavour to turn towards the mother's right side; and then bring down the feet successively, as in the preceding case, but beginning with the left, in order to finish the delivery with the precautions already laid down.

1359. It seems impossible for the length of the anterior part of the neck to correspond exactly with the small diameter of the superior *strait*, in the second position which I have stated, because the fore part of the head cannot rest on the projection of the lumbar column: the chin will not then present directly over the superior angle of the *sacrum*, but on one of its sides, the face lying over the posterior part of the *iliac fossa*. If it does not always happen thus, we may be assured that it is generally so.

1360. In this case, the relation of the child to the *pelvis*, and its attitude in the *uterus*, are such, that we can scarcely conceive how the hand can be conveyed to the feet, especially when the waters have been long drained off. In order to operate with all possible certainty, the accoucheur must make choice of the right hand,

hand, whenever the face shall be placed on the right side of the *vertebral column*, and *vice versa*. When we use the right hand, having passed it above the child's right ear, we must carry the head towards the fore part of the right *iliac fossa*, while with the other hand, applied to the woman's belly, we incline the *fundus uteri* to the left side, in order to give the child almost a transverse position, with respect to the *pelvis*, and favour the rest of the operation. This *deplacement*, which is not exclusively that of the child, but of the *uterus* also, being carried as far as possible, we direct the hand, which is within, to the right foot, and bring it down as far as we can, before we search for the other. We then finish the delivery as in the preceding position.

1361. When we use the left hand, we must introduce it towards the right side of the *pelvis*, in order to carry the head to the fore part of the left *iliac fossa*, and incline the *fundus* to the right side, that we may avoid some of the difficulties which, without that precaution, we should meet with in searching for the feet. It is by tracing the left side of the child, and bringing the foot of that side down first, that

we shall be able to bring them both down properly.

1362. In the third species of labour in which the child presents the neck, we ought always to operate with the left hand. We insinuate it under the breast, directing it towards the top of the right *iliac fossa*, and along the child's left side, to the hip, in order to find the feet more easily, and bring them down in the order in which they present: then finish the turning, as in the preceding case. If we meet with any difficulty in bringing down the feet, after having disengaged them from the *uterus*, we must push up the top of the child's breast a little, and repeat it again and again, if circumstances require it; in order to favour the descent of the breech, which, without that precaution, would perhaps meet with great obstacles to its progression.

1363. Some practitioners have advised, in order to find the child's feet more easily in this position of the neck, to begin with pushing the head above the left *iliac fossa*, and to bring the fore part of the thighs to the entrance of the *pelvis*, by making the breast and belly pass over it successively: but as this manœuvre cannot be executed except at the instant of the evacuation

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itself in that manner. It may present the back, the loins, the shoulders, the head, the knees, or the feet, with the hands and the cord *, without losing the oval figure in which it is naturally folded in the womb; but the fore part of the breast cannot place itself at the entrance of the *pelvis*, unless the head, at least, be turned on the back. Some practitioners have even represented it so, having also the thighs extended, the legs bent, and the feet placed on the loins.

SECTION I.

Of the Causes, Signs, and Differences of Labours in which the Child presents the Breast.

1366. THIS bad position must be the effect of the concurrence of several causes, for one alone cannot produce it: but it is not very easy to conceive the connexion of those causes. It

* Authors are full of cases in which the child presented the hands, the knees, or the feet, and the cord at the same time, to the orifice of the *uterus*. I shall not, however, treat of those labours as a particular species, because they require no practical rules, but what are applicable to others.

seems

seems that an extraordinary extent of the cavity of the *uterus*, relatively to the volume of the *fœtus*, is one of the conditions absolutely necessary for it to happen.

1367. It is much more easy to explain why delivery cannot be performed without help, when the child presents the breast. The difficulty arises from the presentation of the greatest length of the body, in some measure parallel to one of the diameters of the *pelvis*, so that it tends, as I may say, to engage by its fore part, instead of offering one of its extremities: in this case the child would evidently come double, if the breast could advance in that manner; but is there any *pelvis* so vast, as to give it a passage in that form?

1368. It is easy to distinguish the breast after the evacuation of the waters. It presents a surface as large as the entrance of the *pelvis*, and may engage in it sufficiently to become accessible to the finger of the accoucheur, and enable him to distinguish easily the ribs, the *clavicles*, the region of the *sternum*, and the upper part of the *abdomen*.

1369. Although these labours are very rarely met with, I shall however distinguish four spe-

cies of it, relatively to the four principal positions in which the breast may present.

1370. In the first, the fore part of the child's neck rests on the edge of the *pubes*, and the belly over the *sacrum*; the length of the breast being placed in the direction of the small diameter of the entrance of the *pelvis*.

1371. We observe the contrary in the second species; the child's belly being over the mother's *pubes*, and the fore part of the neck on the base of the *sacrum*.

1372. The situation of the child's neck and head on the left *iliac fossa*, and of the belly on the right, characterizes the third species; and the inverse position of those same parts, relatively to the *pelvis*, constitutes the fourth: whence we see that the breast is placed transversely over the *strait* in the two latter positions.

S E C T I O N II.

Of the Method of operating in the different Positions of the Breast.

1373. THE obstacle which opposes the exit of the child, in all these cases, arising from the
cause

cause stated in par. 1367, it is easy to determine what is the most general indication they present: it consists in bringing the head or the feet to the entrance of the *pelvis*. Though some practitioners have advised the former, and then to leave the delivery to the efforts of nature; others, with much more reason, have expressly recommended to search for the feet, and terminate it immediately.

1374. Even if we were to suppose these two methods equally easy, the former could not be admitted indiscriminately in all circumstances. At most, it is only at the instant the membranes open that we could attempt to reduce the head to its natural situation, with any prospect of success: and then we should find much more difficulty in it, than in searching for the feet. I would not advise it to be ever attempted; for how many fruitless trials, as fatiguing to the mother as the child, should we not make for once where we might perhaps at length succeed? The extraction of the child by the feet is preferable in all these cases; and when any accident exists, no other method can be admitted.

1375. Among the partisans of the latter method, some advise us to push up the breast,

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belly,

belly, thighs, and knees, successively towards the *fundus*, in order to bring the feet to the orifice: others recommend searching for them on the child's loins, where they suppose them placed, by passing the hand under one of its sides, to bring them down, by turning it round its axis placed transversely in the *uterus*. The first of these methods is practicable only at the instant the membranes open; and the second, if we were to attempt it later, would be so dangerous to the child, that it would be inexcusable to prefer it to that which I recommend.

1376. The safest practice is to search for the feet, by insinuating one hand towards the lower part of the child's *trunk*, and proceeding in each position as in that of the neck, which is described by the same numerical name.—See the preceding article.

1377. We must never in any of these cases, under any pretext whatever, attempt to extract by pulling only one foot; because it would expose the child to accidents, the least of which would often be a luxation of the thigh.

ARTICLE IV.

Labours in which the Child presents the Belly.

1378. THOSE labours in which the child presents the belly, will not appear less extraordinary than those where it presents the breast, if we form a just idea of the attitude it must then necessarily take in the *uterus*; an attitude which does not seem to be always precisely the same, if practitioners have distinguished it perfectly; for I have found it vary from their descriptions. Though in these cases the child may sometimes have the *trunk* bent backward, the head turned on the back, the thighs extended, and close together, the legs bent, and resting on the loins, as most authors have described it, so as to form a kind of ellipsis, whose greatest diameter extends from the crown of the head to the knees; sometimes also, as I have seen, the inferior extremities are folded in the usual way, the knees being only a little farther asunder, and placed, as it were, at the sides of the belly.

SECTION

S E C T I O N I.

Of the Causes and Signs of the different Species of Labour in which the Child presents the Belly, and their Indications.

1379. THE causes which may determine the child to present the belly to the orifice of the *uterus*, seem to be the same which at other times cause it to present the breast, and are not better known in one case than the other (see par. 1366): but those which render delivery impossible without help, are known perfectly. The child who presents the belly cannot be born in that attitude, because it must come double, and bent backward, and because no *pelvis* is large enough to permit it to pass in that manner.—See par. 1367.

1380. The signs which characterize these labours, are easily discovered by the touch. The abdominal region, placed at the orifice of the *uterus*, forms a soft tumour, not very salient, but pretty broad, terminated on one side by the margin of the breast, and on the other by that of the *pelvis*, on which we may remark more particularly the anterior spine of each *os ilium*: add also, the insertion of the umbilical
 7 cord,

cord, which is sufficient to dissipate all uncertainty.

1381. In the first of these species of labour, the child is situated so that its breast is over the *pubes* of the mother, and its inferior extremities over the *sacrum*.

1382. In the second species, the breast is over the *sacrum*, and the thighs over the *pubes*.

1383. In the third, the belly presents transversely at the entrance of the *pelvis*, so that the breast rests on the left *iliac fossa*, and the thighs and knees on the right.

1384. In the fourth, the belly is also placed transversely over the entrance of the *pelvis*, but so that the breast answers to the right *iliac fossa*, and the inferior extremities are over the left.

1385. It is extremely rare, in all these cases, that a loop of the umbilical cord fails to present and engage in the *vagina* at the instant the membranes open; which may exceedingly increase the danger arising from the bad position of the child, unless we terminate the delivery instantly. The same danger may exist though the cord should not form a loop across the neck of the *uterus*; because it is always compressed in some part or other of its length.

1386. The general indications presented by these

these labours, respecting the mode in which we ought to bring the child, are absolutely the same as in the different species where the child presents the breast. Some practitioners have advised bringing the child to its natural situation, and then leaving its expulsion to the efforts of the woman; while others have recommended searching for the feet, to extract it. The former method would doubtless be more conformable to the intentions of Nature; but it seems impracticable, even at the instant the waters are evacuated, though the child still preserves, as I may say, all its mobility in the *uterus*. For it is to be feared, if we were to persist in preferring it, after many fruitless attempts, we should be obliged to renounce it, and adopt the latter, which those very attempts would render more difficult than it would have been at first. Therefore we ought always to bring down the inferior extremities.

SECTION II.

Methods of operating when the Child presents the Belly.

1387. IN the first of these species of labour we must introduce the hand into the *uterus*, above the projection of the *sacrum*, where are the feet, or the knees, according as the child is folded in one or other of the forms indicated in par. 1378; and having taken hold of one of those parts, as most convenient, but the feet in preference, we must bring them down, and finish the delivery in the same manner as if those parts had presented naturally.

1388. It is not so easy to perform the delivery in the second species, where the child presents the belly, especially when the thighs are extended, the legs bent, and the feet turned back on the loins; because we cannot convey the fingers directly to the knees, as in the preceding case: at least, unless we can remove them from over the *symphysis* of the *pubes*, by a convenient pressure with the other hand on the woman's belly; or else, push the breast upward and backward, and by that means make them descend to the entrance of the *pelvis*.

We

We may act in either of these ways; preferring the latter, if we operate at the instant of the evacuation of the waters, and the former when that fluid has been evacuated some time. In the latter case, we must introduce the hand at one of the sides of the *pelvis*, bending the fingers towards the knees, which we must incline to the same side, by pressing externally with the other hand, till we can hook them, and bring them down, the thighs then coming in the same direction in which they naturally bend.

1389. Some accoucheurs, instead of this method, would perhaps endeavour to pass the hand over one of the child's hips, in order to get hold of the feet placed on the loins, and bring them down, no matter how: but though they might spare themselves a little difficulty by acting thus, they would expose the child to great inconveniencies, from which it would be secure in the other methods.

1390. We never meet with so many obstacles to delivery in the third and fourth species, as in the second, whatever may be the situation of the child's inferior extremities with respect to the *trunk*. In the third species, we introduce the left hand towards the right lateral

teral part of the *uterus*, to take hold of the knees if the thighs are extended, and the feet if they are bent. We proceed in the same manner in the fourth species, but insinuating the right hand over the left *iliac fossa* of the woman, towards which the extremities of the child are then placed.

1391. In case the hand introduced into the *uterus*, to examine the position of the child, should not be that which I have prescribed for each transverse position of the belly, it may nevertheless be used, if the waters be but recently drained off: but instead of directing the fingers at first towards the knees or the feet, as just recommended, it would be necessary to push up the child's breast above the *iliac fossa* which supports it, in order to bring the extremities nearer the entrance of the *pelvis*, and make it more easy to take hold of them. But when the *uterus* is strongly contracted on the child, this must not be attempted, but we must withdraw the hand, and introduce the other in the manner laid down in par. 1390.

A R T I C L E V.

Labours in which the Child presents the Fore Part of the Thighs, and of the Pelvis; their Causes, Signs, Differences, and the Mode of operating in them.

1392. THE possibility of labours in which the child may present the fore part of the thighs, and the region of the parts of generation, must be admitted as a consequence of the preceding; if it be true, that the child can take that attitude in the *uterus*, in which authors have painted it, when it presents the belly. In fact, we meet with so few examples of them, and they have so much relation to those I have just described, that I should willingly have passed them over in silence, if the signs which distinguish them were not different from those which indicate the presence of the belly or breast.

1393. The causes of these labours are the same which determine the presentation of the *abdomen* or the breast. The region of the parts of generation, and the fore part of the thighs, cannot place themselves at the orifice of the
uterus,

uterus, unless the child be bent backward, and have the feet placed on the loins; and unless the great axis of the oval figure, which it describes in the *uterus*, extend from the crown of the head to the knees, as we see in par. 1378.

1394. We cannot distinguish this region of the child's surface so easily as that of the *abdomen*; because it cannot adapt itself so exactly as that to the entrance of the *pelvis*, and because it remains out of the reach of the finger. We may distinguish it by the softness of the abdominal tumor which we find in the environs; by the parts of generation, especially if it be a boy, because they are more salient; and by two parallel columns, formed by the thighs, which are always extended in these cases.

1395. In the first of the four principal positions which these parts may take with respect to the *pelvis*, the knees rest over or on one side the projection of the *sacrum*, and the *abdomen* is over the *pubes*: the breast and face being under the anterior part of the *uterus*. In the second position, these latter are towards the posterior part of the *uterus*, and the knees are situated forward on the edge of the *pelvis*. In the third, the child is placed transversely, so that the knees rest on the lower part of the

right *iliac fossa*, while the breast is over the left: and in the fourth, the breast and the belly are towards the right *iliac fossa*, and the knees over the left.

1396. The indication presented by these species of labour is easy to perceive: it consists in searching for the knees or feet of the child, in order to extract it, proceeding in each position, as in that of the belly, indicated by the same numerical name.

C H A P. V.

Labours in which the Child presents the different Regions of its posterior Surface to the Orifice of the Uterus.

1397. **T**HESE labours are met with a little oftener than those in which the child presents one of the regions of its anterior surface. We have already seen what a strange and uneasy attitude it must take, to present the face, the neck, the breast or the belly, to the orifice of the *uterus*, and what must be the concatenation of causes necessary to produce that effect. It is not so in the labours I am now going to treat of; very simple causes, such as an obliquity of the *uterus*, and a greater quantity of water than usual, may occasion them: because the child, without losing that oval form, in which it is naturally folded, may present the occipital region, the hind part of the neck, the back, and the loins.

1398. Nor does the same danger attend these two orders of labour. Those which I am now going to treat of are, *cæteris paribus*, less

disagreeable both for the mother and child, and present much fewer difficulties than the former.

A R T I C L E I.

Labours in which the Child presents the occipital Region at the Orifice of the Uterus.

S E C T I O N I.

Of the Causes and distinguishing Signs of those Labours, and their Indications.

1399. THE presence of the occipital region at the orifice of the *uterus*, or over the entrance of the *pelvis*, seems to proceed from no other cause than a deviation of the longitudinal axis of the child's *trunk*, relatively to that of the *pelvis*: which may depend on an obliquity of the *uterus* itself, or on the great quantity of water contained in it.

1400. A round solid tumor, on which we may distinguish the posterior *fontanelle*, the *lambdoidal*

lambdoidal suture, and the membranous spaces which are at the bottom of each of its branches, characterize the occipital region.

1401. This region may present in four different situations. In the first, the crown of the head rests against the projection of the *sacrum*, and the back of the neck on the edge of the *os pubis*; so that the back answers to the anterior part of the *uterus*.

1402. In the second position, the *vertex* is over the *os pubis*, the hind part of the neck on the base of the *sacrum*, and the child's back against the posterior part of the *uterus*.

1403. In the third position, the hind part of the neck rests on the inferior edge of the right *iliac fossa*, the crown of the head answers to the left side, the child's back to the right lateral part of the *uterus*, and the breast to the left.

1404. We observe the contrary in the fourth position, as to the relation of all these parts to the *pelvis*; the crown of the head answering to the right side of that cavity, and the hind part of the neck, as well as the back of the child, to the left side. The two latter positions are more frequent than the others.

1405. These labours differ little from those

in which the child presents the crown of the head ; and do not always require help. The head often reduces itself, as it were, spontaneously to its natural situation, in proportion as the labour augments ; because the direction of the axis of the *uterus*, or of that of the child, may alter either from the position of the woman, or from the contraction of the *uterus*, after the evacuation of the waters. When this change does not take place thus of itself, we must direct the woman to lie on the side opposite to the deviation of the *uterus*, or, which is exactly the same thing, on the side to which the crown of the head answers. If this precaution be not sufficient, we must introduce a hand into the *uterus*, to bring the *vertex* to the center of the *pelvis*.

1406. We must act differently when the labour is complicated with any of the accidents already mentioned, and which I have considered as so many causes which render it preternatural or dangerous, either to the mother or the child : in that case we must turn and bring it by the feet, unless we judge it more expedient to extract the head with the forceps*.

* See the article on those cases which require the use of the forceps, part iv.

SECTION II.

Of the Manner of operating in the different Species of Labour in which the Child presents the occipital Region.

1407. IN the first of these species of labour, which is very rare, as soon as we have perfectly distinguished the position of the child, we ought to lay the woman horizontally on her back, in order to diminish the anterior obliquity of the *uterus*, and by that means oblige the *vertex*, which rests against the projection of the *sacrum*, to place itself in the center of the *pelvis*. When we cannot succeed in that manner, we must introduce one hand along the *sacrum*, to the entrance of the *uterus*, till the fingers can hook the summit of the head, and bring it down properly; taking care at the same time to turn the occipital region towards one or other of the *acetabula* of the woman. After that we may leave the delivery to the efforts of Nature.

1408. When accidental circumstances require us to turn the child and bring it by the feet, we carry the hand a little farther, but still

in the same direction; we remove the head, making it describe a pivot-like motion sufficiently extensive to bring the *occiput* towards one or other of the *iliac fossæ*; that is to say, towards the right, when we operate with the right hand, and *vice versa*. In proportion as the hand advances, we turn the child's *trunk* in the same direction, and proceed with the rest of the operation; observing all that was prescribed in the third position of the crown of the head.— See par. 1315.

1409. There is nothing to be expected from the efforts of Nature in the second species of labour in which the child presents the occipital region, if the woman's *pelvis* be at all contracted; because the head cannot descend without presenting the face upward, as in the sixth position of the *vertex*, and because it is always extremely difficult, even if we attempt it early, and at the most favourable moment, to change this position of the head, and direct it so that, in the last period, the *occiput* may pass under the arch of the *pubes*: therefore I think it better to turn the child and bring it by the feet, than to expose the woman to violent efforts, not only always painful and fatiguing, but generally also fruitless.

1410. We

1410. We must insinuate the hand into the *uterus*, along one of the sides of the head which we remove from the entrance of the *pelvis*, turning the *occiput* towards the right *iliac fossa* of the woman, if we use the right hand, and *vice versa*; the rest of the operation is to be conducted in the same manner as for the sixth position of the *vertex*.—See par. 1322.

1411. In the third position of the *occiput*, the *vertex* being feebly retained on the left side of the *pelvis*, may place itself of its own accord in the center of the superior *strait*, if the woman remain some time lying on her left side. When this precaution, as simple as it is free from pain, does not suffice to procure this advantageous change, the accoucheur must introduce his right hand into the *uterus*, towards the left *iliac fossa*, as far as the *vertex* of the child's head, to bring it to its natural situation, and then leave the rest to Nature.

1412. When particular circumstances require us to deliver without delay, we must turn the child and extract it by the feet. We then introduce the right hand in the direction indicated in the preceding paragraph; we remove the head from the entrance of the *pelvis*, pushing it towards the right *iliac fossa*; and search
for

for the feet, by tracing the right side of the child: as I have recommended in treating of the second position of the *vertex*.—See par. 1311, and following.

1413. In the fourth position of the *occiput*, when we only propose to reduce the head to its natural situation, and then leave the expulsion of the child to the efforts of Nature, we must begin by laying the woman on her right side, in order to diminish the obliquity of the *uterus*, and oblige the crown of the head to approach the entrance of the *pelvis*. If that precaution be not sufficient, we must introduce the left hand into the *uterus*, as far as the right *iliac fossa*, to hook the head and reduce it to the position required.

1414. When it is necessary to turn the child, we must also use the same hand. We insinuate it in the same direction towards the right lateral part of the *uterus*; in order to remove the head from the entrance of the *pelvis*, pushing it towards the left *iliac fossa*, in the same manner as in the first position of the *vertex*: and finish the operation in the manner laid down in par. 1306, and following.

A R T I C L E II.

Labours in which the Child presents the Back of the Neck, commonly called the Nape.

S E C T I O N I.

Of their Causes, Signs, Differences, and general Indications.

1415. THIS preternatural position may be the effect of the concurrence of the two causes stated in par. 1399, or of one of them only.

1416. We may easily distinguish the posterior part of the child's neck by the touch, when the waters are evacuated. The signs which characterize it, are the spiny tubercles of the cervical *vertebræ*, always the more sensible to the touch, as the child's head is more bent forward on the breast, and as the *uterus* embraces the whole more strictly; the angles of the lower jaw, and the superior edges of the *scapulæ*. This region may present at the entrance

trance of the *pelvis* in different ways, and those different positions constitute so many species of labour.

1417. In the first, the child is so situated, that the *occiput* rests on the edge of the *pubes*, and the back over the base of the *sacrum*.

1418. In the second, the *occiput* is on one side of the projection of the *sacrum*, and the back over the *pubes*, under the anterior part of the *uterus*.

1419. In the third, the length of the neck is placed transversely with respect to the *pelvis*, so that the *occiput* rests in the left *iliac fossa*, and the back over the right.

1420. In the fourth, the neck likewise presents across; but so that the *occiput* is in the right *iliac fossa*, and the back over the left. These two latter positions are met with oftener than the former.

1421. Delivery cannot be performed without help in any of these cases; except perhaps in some circumstances extremely rare, in which the crown of the head may, as it were, spontaneously, place itself in the center of the *pelvis*, the woman taking a favourable position for it: as I have remarked before, in treating of the presentations of the *occiput*.

1422. The first indication which these different positions of the child prescribe, consists in reducing the head to its usual situation, if we find the woman has strength enough to go through the labour. We must however except the first position, as we shall see in the following section. But this indication, which seems the most natural, sometimes presents so many difficulties in the execution, that it is better to disregard it, and search for the feet, than to persist in endeavouring to reduce the head to a good position. We are besides frequently obliged to give up this method, on account of accidental circumstances which require us to terminate the delivery without delay.

S E C T I O N II.

Method of operating in the different Species of Labour in which the Child presents the Nape of the Neck.

• 1423. If we consider the difficulties we must meet with, in bringing the crown of the head to the center of the *pelvis*, when the back of the

the

the neck presents in the first position, especially when the waters have been some time drained off; and in turning the face from over the *pubes*, so that it may go towards the *sacrum* in the sequel, we shall see that it is more prudent to turn the child and bring it by the feet, than to fatigue the mother with useless attempts, which would only render the latter operation more difficult to execute.

1424. In this species of labour, we may use either the right hand or the left. If we operate with the former, we must insinuate it in a middle state, between that of *pronation* and *supination*, towards the left side of the *uterus*, till we reach the child's right shoulder. Then we must endeavour to turn the *trunk* a little on its axis, that the child's back may be towards the woman's right side. Afterwards, we must search for the feet with the usual precautions, and bring them successively to the entrance of the *vagina*, beginning with the right. When they are both brought down so far, we must pull a little while on the left foot only, in order to finish turning the child's breast towards the woman's left side, and also favour the flexion of the *trunk* forwards; the utility of which may be very clearly seen by a demonstration

monstration on the machine. Then we pull equally on both feet, and in proportion as the child descends, continue to turn the breast and the face towards the right *sacro-iliac junction*; and extract the head as directed in the first position of the feet.

1425. If we operate with the left hand, we must do it according to the same principles. But we must insinuate it towards the right side of the *uterus*, and turn the child's back, as we proceed, towards the left side of that *viscus*; bringing down first the left foot, then the right. After having brought them both into the *vagina*, we pull a little while, almost entirely on the right, in order to turn the breast and face towards the left *sacro-iliac junction*, and deliver the head as in the second position of the feet.

1426. In the second position of the nape of the neck, we may try to reduce the head to its natural situation, if the labour be not complicated with any accident; but we must not expect to perform it easily, even at the instant the waters are evacuated; and experience leads me to believe that it would be better to search for the feet. If however we resolve to attempt it, we must proceed in the following manner.

1427. The woman being laid on her back, and at the edge of the bed, we introduce the right hand along the posterior part of the *uterus*, till the fingers can grasp the crown of the head well enough to bring it to the entrance of the *pelvis*. We must observe, at the same time, to turn the *occiput* towards the left *acetabulum*, and make a proper pressure with the other hand on the woman's belly, to diminish the anterior obliquity of the *uterus*.

1428. When it is necessary to turn the child and extract it by the feet, we slide the right hand under the *occiput*, from whence we direct the fingers obliquely on the right side of the head, to remove it from the *lumbar column* of the mother, and carry it over the *os pubis*, in such a manner that the ear may answer to the hand which operates. We continue to advance the hand along the same side of the child, while with the left hand, which is without, we incline the *fundus uteri* a little towards the right side. When we have found the feet, we must bring them down, and pull them in the order recommended for the first position. If we find any difficulty in bringing them entirely without, we remove the head from the brim, pushing it towards the right *iliac fossa*.

1429. When

1429. When we operate with the left hand, we introduce it also under the *occiput*; but from thence we direct the fingers on the left side of the hand, to raise it over the *pubes*, as in the preceding case, and search for the feet along the same side of the child, &c.

1430. When we can discover that the third position exists, before the opening of the membranes, it is proper to lay the woman on her left side, till the waters are discharged; because, by means of that precaution, the child's head may return to its natural situation. But if not, we must introduce the right hand into the *uterus* towards the left *iliac fossa*, till the fingers can grasp the crown of the head so as to bring it to the entrance of the *pelvis*; while with the other hand we exert a proper pressure on the *abdomen* to incline the *fundus* towards the left side.

1431. Whenever we meet with too much difficulty in reducing the head to its natural situation, or any circumstances foreign to the bad position in question require us to deliver without waiting for the assistance of the powers of the mother, we must search for the feet, and turn the child. We then introduce the right hand towards the *vertex*, as before; but at

the same time, a little under and towards the right temple, to remove the head from the posterior part of the *pelvis*, and carry it over the *os pubis*, pushing it, as much as we can, towards the fore part of the right *iliac fossa*. After that, we search along the right side of the child for the feet, first bringing down that which belongs to the same side, and then the left. When they are both at the entrance of the *vagina*, we pull at first almost entirely on the latter, and if we meet with any difficulty in bringing them down, we must again remove the head from the brim. The rest of the delivery must be performed in the manner recommended for turning when the crown of the head presents.

1432. The fourth species of labour in which the back of the neck presents, offers the same indications as the preceding : but whether we propose to reduce the head to its natural position, or to turn the child and extract it by the feet, we must operate with the left hand. To fulfil the first of these two indications, we introduce it above the right *iliac fossa*, and pull down the *vertex* towards the entrance of the *pelvis* ; while with the right hand we exert a proper

proper preffure on the *abdomen* of the woman, to change the direction of the *uterus*, and incline the *fundus* a little towards the right side.

1433. When we would turn the child, we insinuate the left hand in the same direction; but at the same time passing it a little under the head to raise it over the *pubes*, and carry it on the fore part of the left *iliac fossa*. Then we search for the feet along the left side of the child, and bring them down with the precautions already recommended. If we meet with any difficulty in bringing them down, in proportion as the feet descend, we must raise the head more and more towards the upper part of the left *iliac fossa*.



ARTICLE III.

Labours in which the Child presents the Back.

SECTION I.

Of their Causes, Signs, Differences, and Indications.

1434. THESE labours are met with a little oftener than those in which the child presents the nape of the neck, although they seem to depend on the same causes: which doubtless arises from the form of the back, which is more rounded than the nape of the neck, and consequently more easily adapted to the entrance of the *pelvis*.

1435. We may easily distinguish this region of the child by the touch, when the waters are evacuated. It presents a large and unequal tumor, on which we may distinguish the *spiny tubercles* of the *vertebræ*, though very small at the time of birth; the ribs, the posterior edges, and inferior angles of the *scapulæ*.

1436. The

1436. The back may place itself in four different ways at the entrance of the *pelvis*. In the first position, the back of the neck rests on the edge of the *os pubis*, and the region of the loins over the *sacrum*.

1437. In the second, the child's loins are over the *os pubis*, while the nape is over the posterior edge of the *pelvis*.

1438. In the third, the back is placed transversely, so that the head lies in the left *iliac fossa*, and the loins are over the right.

1439. The fourth position is the reverse of the third; the child's head being in the right *iliac fossa*, and the loins over the left. These two transverse positions are more frequent than the others.

1440. Those labours in which the child presents the back offer the same indications as those of the preceding article. The relation of the dimensions of the child's body, to those of the mother's *pelvis*, is always such, that she cannot be delivered unless we bring the head or the feet to the passage. But accoucheurs are still divided concerning which is the best method to be taken; some recommend bringing the child's head to the entrance of the *pelvis*, and others, with much more reason, to

turn the child. When we consider the distance of the head from the entrance of the *pelvis*, the irregular form of the child, bent almost double, and the manner in which it is embraced by the *parietes* of the *uterus*, after the evacuation of the waters, we perceive so many difficulties in reducing the head to its natural situation, that we cannot help looking on the method proposed by the latter, as the only one practicable in these cases. We ought then to turn the child, and extract it by the feet, whenever it presents the back.

SECTION II.

Method of operating when the Child presents the Back.

1441. EVEN if we should admit the possibility of reducing the child's head to its natural situation, in cases where it presents the back, we must except that which is described in par. 1436, and which constitutes the first species of those labours : for all attempts to do it would certainly be useless, and even pernicious.

cious. No method but extracting the child by the feet is admissible in that case.

1442. The most simple mode of operating, when the waters are but just evacuated, is to insinuate the hand with the palm upwards, along the posterior part of the *uterus*, the loins and breech of the child, till we can take a good hold of the feet, which lie against the latter, and bring them into the *vagina*; while we press lightly with the other hand on the middle of the woman's belly, at the part where the child's head lies, in order to push it upward and backward, and favour the descent of the feet.

1443. This procedure, always easy to execute, when we operate at the instant the waters are evacuated, on account of the mobility the child still enjoys, is attended with so much difficulty when the waters have been long discharged, and the *uterus* is strongly contracted on the child, that it is better to proceed in the following manner.

1444. We introduce the right hand towards the left side of the *uterus*, keeping it in a middle state, between that of *pronation* and *supination*, that is, with the thumb to the *pubes*, till we arrive at the child's hip; then we remove the breech from the *lumbar column* of the mother,

pushing it towards the right side. With the other hand applied externally on the belly, we incline the part where the child's head lies towards the left side, in order to give the child a diagonal situation, with respect to the entrance of the *pelvis*. Then we bring down the feet in the same manner as in the first species of the presentation of the nape of the neck; taking care to pull most at the left foot as soon as they both appear at the entrance of the *vagina*, in order to favour the anterior flexion of the child, and give the loins a little twist, which is necessary for the descent of the breech. We might also use the left hand in this latter period; but it must be introduced on the other side of the child, and at the right lateral part of the *uterus*, &c.

1445. In the second position of the back, we must act in the same manner as in the second position of the nape of the neck, except that we must never attempt to bring the head to the passage.—See par. 1427, and the following one.

1446. In the third position of the back, when we can operate at the instant the membranes open, we may with equal advantage use either the right or left hand, but differently.

If

If we prefer the latter, we must insinuate it above the right *iliac fossa* of the woman, to hook the child's feet which are there, and bring them down; while with the other hand we make a pressure on the left side of the woman's belly, where the head lies sufficiently strong to push it upwards and towards the opposite side.

1447. When we operate with the right hand, we first insinuate it under the child, lifting it up a little, and carrying the back above the *os pubis*; then we direct the fingers towards the right hip, and bring the feet successively to the entrance of the *vagina*. At this latter period, we pull almost entirely on the left foot, in order to favour the conversion of the *trunk*, and the movements necessary for the descent of the breech: after that, we act equally on both feet, and conduct the rest of the operation, as in all other cases where we are obliged to turn the child. This latter method is the only one that is proper, or at least has the fewest difficulties attending it, when the waters have been long drained off.

1448. The fourth position presents the same indications as the third: we may operate with either hand according to circumstances.

1449. When

1449. When we operate immediately after the membranes are open, we slide up the right hand towards the left side of the *uterus*, over the *iliac fossa*, where the child's feet are; to hook them with the ends of the fingers, and bring them down; while with the other hand we make a proper pressure on the right side of the belly, to incline the *uterus* to the opposite side.

1450. In this same case we may also search for the feet with the left hand; but then we must introduce it under the child's body, which we must remove from the *lumbar column* of the mother; directing the fingers towards the left hip. We first bring down the left foot, then the right, on which we pull almost entirely, at first, to favour the flexion of the *trunk*, which is necessary for the descent of the breech. After that we proceed as in the other cases.

1451. This latter method is by much the most convenient, when the waters have been evacuated some hours, and the *uterus* is closely contracted on the child: which is but too common, when we are called in second, to assist in terminating these labours.

1452. In all these bad positions of the child, as well as in those where it presents the back of
of

of the neck, the loins, &c. many accoucheurs advise us to push up the inferior part of the *trunk*, towards the *fundus uteri*, in order to reduce the head to its natural situation; or else to push up the head that the feet may come to the orifice of the *uterus*, by making every part pass successively over it, which is comprehended between that which presents, and that we wish to bring to it. But this method can only be the fruit of an erroneous speculation; and admitting that it were practicable, it could only be at the instant the membranes open; and even then, it would always be more difficult to execute, and more fatiguing to the woman than those which I have laid down.

A R T I C L E IV.

Labours in which the Child presents the Loins.

S E C T I O N I.

Of their Causes, Signs, Differences, and Indications.

1453. THE lumbar region presents as often at the orifice of the *uterus* as the region of the back; and these two kinds of labour seem to be effects of the same causes, at least it is difficult to assign them particular ones.

1454. When the waters are drained off, and the child's loins are a little pressed on the entrance of the *pelvis*, by the action of the *uterus*, we discover them without much trouble. In the middle of the kind of tumor which they form, we may distinguish a range of tubercles pretty salient, the false ribs on one side, and the posterior angles of the *ossa ilia* on the other.

1455. In the first species of labour where this region presents, the child's back is over the *pubes* of the mother, and the breech is backward over the *sacrum*.

1456. In

1456. In the second species, the breech and the feet of the child are situated above the *pubes*, against the anterior part of the *uterus*; the back and the head on the posterior part of that *viscus*.

1457. In the third, the back is over the left *iliac fossa*; the breech and the feet are over the right.

1458. In the fourth, the back and head are over the right *iliac fossa*; the breech and the feet being over the left.

1459. Whenever the loins present at the orifice of the *uterus*, the woman cannot be delivered without help, unless they remove spontaneously, at the instant the membranes open, and the breech should place itself at the entrance of the *pelvis*, as I have twice seen happen. When this change does not take place spontaneously, we must bring the child by the feet. I am persuaded no one will venture to propose a contrary method, after the difficulties which I have suggested in reducing the head to its natural situation, when the back, or even the nape of the neck, presents. But some accoucheurs perhaps will prefer, as I have heard recommended, only bringing the breech to the entrance of the *pelvis*, and afterwards
I leaving

leaving the expulsion of the child to the efforts of Nature : this method will even appear well founded, if we only consider the great number of women who have been delivered, as I may say, without help, in cases where the child presented the breech. But those accoucheurs would soon change their opinion, if they would reflect ever so little, 1. to what a number of pains they would expose the woman by only bringing the child's breech to the entrance of the *pelvis* ; 2. that it is more difficult, in this case, to bring the breech to the orifice of the *uterus*, and give it a favourable situation, than to get hold of the feet and bring them down ; 3. that a labour considered as natural is always much more easy, and less painful, when these latter present, than when it is the breech, &c. &c. &c. *

1460. The manner of operating in each of these different species of labour, is nearly the same as that which has been prescribed for each position of the back.

1461. In the first species we insinuate the

* It must not be inferred from this paragraph, that I am of opinion we ought always to search for the feet whenever the breech presents. I have already explained my sentiments on that subject.

hand

hand in a state of supination above the *sacrum* of the mother, to take hold of the feet and bring them down ; while with the other hand we press more or less on the woman's belly, with a view of diminishing the anterior obliquity of the *uterus*.—See par. 1442, and following.

1462. When the loins present in the second position, if we can operate as soon as the membranes open, we must push the child's body backward, by insinuating the hand nearly as in the first case ; to bring the feet which are over the *pubes* to the entrance of the *pelvis*, and take hold of them more easily. But if the waters have been long drained off, we must search for the feet in the same manner as I have recommended in the second position of the back.—See par. 1445.

1463. In the third, we must search for the feet by introducing the left hand over the right *iliac fossa* of the mother ; and in the fourth species, by insinuating the right hand towards the left side of the *pelvis*, and operating as in the third and fourth positions of the back.—See par. 1446, and following.

C H A P. VI.

Labours in which the Child presents the lateral Regions of its Surface.

1464. **E**VERY one knows that the surface of the body presents two sides perfectly similar; the right, and the left; and that we may distinguish several regions in them. I shall fix the number necessary to be distinguished for our purpose to five: 1. the side of the head; 2. that of the neck; 3. the shoulder; 4. the side properly so called, or the lateral part of the breast; 5. the hip.

1465. Either of these five regions may present at the orifice of the *uterus* at the time of labour, though some of them are met with more frequently than others, and they present different indications relative to the mode of operating: for these indications vary not only for each region, and their different positions, but also according as they belong to the right or left side of the body. The better to demonstrate all the difference between the same regions

gions on the opposite sides of the body, after having stated what relates to any position of a region of the right side, I shall immediately treat of the same position of the left side. I shall not hesitate even to repeat what I have said before, if necessary to develop the mechanism of these labours more clearly.

1466. These bad situations of the child depend on the concatenation of several causes, which would be difficult always to determine: an obliquity of the *uterus*, and the great quantity of water which sometimes surrounds the child, favour them all, and seem sufficient to occasion some of them, independently of any other cause.

1467. The diagnostic of these labours is not more difficult to distinguish, than those described in the preceding chapter; and the prognostic of them, *cæteris paribus*, must also be the same.

A R T I C L E I.

Labours in which the Child presents the right or left Side of the Head.

S E C T I O N I.

Of their Causes, Signs, Differences, and Indications.

1468. THESE labours may be the effect of the general causes stated in par. 1467, or of one of them only: for the great diameters of the child's body cannot be parallel to the axis of the *pelvis*, when the *uterus* is much inclined in any direction, or when it contains a large quantity of water.

1469. We may easily distinguish the lateral parts of the head, especially after the evacuation of the waters. We then find a solid roundish tumor at the entrance of the *pelvis*, in which we can touch neither the anterior or the posterior *fontanelle*. If we meet with any thing like them, it is those membranous spaces which are
found

found at the bottom of the *lambdoidal* and *coronal* sutures. But the ear, which is the most salient part of it, clearly demonstrates it to be the side of the head that presents. We have then nothing to do, but to examine whether it be the right or left side; to distinguish which is very essential, in order to determine the best mode of operating.

1470. To make this distinction, we must carefully observe the relation which all the above-mentioned marks have to the *pelvis*; as we shall see in the following position, which will serve for an example.

1471. In the first position of the sides of the head, which is far from being the most common of the four I am going to describe, the *vertex* is over the edge of the *os pubis*, against the anterior part of the *uterus*, and the base of the *cranium* towards the *sacrum*; so that the face is towards the left *iliac fossa* when the right side of the head presents, and towards the right *iliac fossa* when it is the left side: which we may distinguish by the situation of the posterior edge of the ear, that of the angle of the lower jaw, or of any other of the marks with respect to the *pelvis*. We may be certain that it is the right side of the head which presents

in the first position, if we find the posterior edge of the ear toward the right side of the *pelvis*.

1472. In the second position, which is the most frequent, the *vertex* is situated transversely over the union of the *sacrum* with the *vertebral column*, and the base of the lower jaw or the neck over the *pubes*: the face is towards the right *iliac fossa* when the right side of the head presents, and towards the left when it presents the left side.

1473. In the third position the *vertex* answers to the lower part of the left *iliac fossa*, and the base of the lower jaw to the right; so that the face lies transversely over the *sacro-vertebral symphysis* when the right side of the head presents, and under the anterior part of the *uterus* when it is the left side.

1474. In the fourth position the *vertex* answers to the right *iliac fossa*, and the base of the *cranium* to the left; so that the face is situated under the anterior part of the *uterus*, over the *pubes*, when it is the right side of the head, and over the *sacro-vertebral symphysis* when it is the left.

1475. It must be remembered, that the head cannot present one of its sides at the orifice

of the *uterus*, without being bent on the opposite shoulder. It will then lie against the left shoulder whenever it presents the right side, and on the right shoulder when it presents the left. This remark itself indicates what ought to be done in all these cases, to restore Nature to her rights, and enable her to perform the delivery.

1476. Labours in which the child presents one of the sides of the head present different indications, according to the circumstances which complicate this bad position. Sometimes they consist in reducing the head to its natural situation, in order to commit the expulsion of the child to the forces of the mother; and sometimes in turning it, to extract it by the feet.

S E C T I O N II.

Method of operating in the first and second Species, where the Child presents one of the Sides of the Head.

1477. THE first of these species of labour presents one of those cases in which it might

be proper to place the woman on her elbows and knees, if any advantage were ever to be expected from that situation ; because it seems the most likely to restore the head to its natural position : but it is so inconvenient, that the woman cannot continue in it any time, and therefore we ought never to prescribe it. It is better to keep the woman on her back, and introduce one hand to the entrance of the *uterus*, to remove the base of the child's *cranium* from the projection of the *sacrum* ; while with the other we press more or less on the *hypogastric* region, to force down the *vertex* towards the center of the superior *strait*. If we cannot compass this first intention, which is to reduce the head to its natural situation, we must turn the child and bring it by the feet, as we also must whenever the labour is complicated with any of those accidental circumstances which I have repeatedly mentioned.

1478. To turn the child when the right side of the head presents, we must introduce the right hand into the *uterus*, towards the left *iliac fossa*, where the face is, in order to remove the head from that side, and push it towards the right *iliac fossa* : then we search for the feet, and finish the delivery in the same manner

ner as in the second species, where the *vertex* presents.

1479. When the left side of the head presents in the first position, we must operate with the left hand. It must be introduced towards the right *iliac fossa*, where the face is, to direct the head over the left *iliac fossa*, and search for the feet as in the first position of the *vertex*.

1480. I have already observed that the position of the head, which constitutes the second species of these labours, is the most common of the four, into which they are divided. It cannot occur but when the *uterus* is very much inclined forward; and experience has frequently convinced me, that in most cases, diminishing the obliquity of the *uterus*, by laying the woman on her back, and as horizontally as possible, is sufficient to restore the head to its natural situation. If this precaution fail, we must endeavour to procure the change of position, by introducing one of the hands into the *uterus*, above the base of the *sacrum*, to hook the *vertex* which lies there, and bring it to the center of the entrance of the *pelvis*.

1481. When particular circumstances do not permit us to commit the delivery to Nature, but require us to terminate it immediately, we

must turn the child, and extract it by the feet. In that case, if the right side of the head presents, we use the left hand, which must be introduced above the *vertex*, to rectify the position of the head, as I have just directed; while with the other hand we press more or less on the woman's belly, to diminish the anterior obliquity of the *uterus*. After that, we search for the feet in the same manner as if the *vertex* had presented in the first position.

1482. If we find the left side of the head at the orifice of the *uterus*, we operate with the right hand. We begin, as before, by bringing down the *vertex* to the superior *strait*; and then push the head over the right *iliac fossa*, in order to search for the feet, as in the second position of the *vertex*.

S E C T I O N III.

Method of operating in the third and fourth Species, where the Child presents one of the Sides of the Head.

1483. WE cannot call to mind the position of the head which constitutes the third species of

of these labours, without perceiving that it is more difficult to reduce it to its natural situation, than in the preceding case. To procure that reduction, when the right side of the head presents, we must remove the child's face from the base of the *sacrum*, by advancing the right hand in the neck of the *uterus*, while we make a pressure with the other on the *hypogastric* region of the woman, to force the *occiput* down towards the middle of the *pelvis*; and we must direct the woman to lie a little on the left side, to incline the *fundus uteri* that way.

1484. We must in some respects proceed in the same manner in the third position of the left side of the head, if we attempt to reduce it to its natural situation. But it is much more easy to perform than in the preceding case, because the *occiput* rests on the base of the *sacrum*, and we can carry the hand directly upon it, to bring it down to a proper situation at the entrance of the *pelvis*.

1485. When circumstances require us to turn the child, and bring it by the feet, we use the right hand, if the right side of the head presents. It must be introduced along the *sacrum* and under the child's face; we raise the head, carrying it forward, and at the same time

time towards the right *iliac fossa*; then search for the feet as in the second position of the *vertex*; and finish the delivery as directed in that species of labour.

1486. We may also operate with the right hand in the third position of the left side of the head. We slide it up under the *occiput* which rests against the base of the *sacrum*, and proceed at first as if we only intended to reduce the head to its natural situation: but at the same time carrying it on the fore part of the right *iliac fossa*, in order to search for the feet, in the same manner as in the preceding case. After having brought them to the entrance of the *vagina*, we must observe to pull a little stronger on the left foot for a few seconds, in order to favour the movements of the *trunk* necessary for the descent of the *breech*. The rest of the operation must be conducted as usual.

1487. We might also operate with the left hand in this third position of the left side of the head; but we must slide it up towards the right *iliac fossa* of the mother, and push the head towards the other, in order to search for the feet by passing the hand along the left side of the child. If this method, which is more difficult

difficult than that described in the preceding paragraph, should be preferred, we must pull almost entirely on the right foot, after they are both brought into the *vagina*; to accomplish the same views as were intended before, when I directed the greatest force to be exerted on the left foot.

1488. When the right side of the head presents in the fourth position, we may reduce it to its natural situation without much trouble, by introducing one hand under the *occiput* which rests against the base of the *sacrum*, and bringing it to the center of the superior *strait*, while with the other we incline the *fundus uteri* a little towards the right side. When it is necessary to turn the child, and extract it by the feet, we may use either the right or left hand. If we prefer the former, we must direct it towards the left *iliac fossa* of the mother, to search for the feet along the right side of the child: and when they are both brought to the entrance of the *vagina*, we must pull chiefly on the left foot, to facilitate the conversion of the *trunk*, and the descent of the breech in a proper direction. The rest of the delivery to be conducted as usual.

1489. If

1489. If we use the left hand, we must insinuate it along the *sacrum* under the *occiput*, to bring it to the center of the superior *strait*, as if we only wanted to reduce the head to its natural situation ; we then remove the head from the entrance of the *pelvis*, pushing it over the fore part of the left *iliac fossa*, and then search for the feet along the child's left side. As soon as they are both disengaged from the *uterus*, we pull only on the right foot, to bend the *trunk* more easily on its anterior part, and favour the descent of the breech ; after that we pull equally on both feet, and finish as in the preceding case.

1490. To reduce the head to its natural situation, when the left side of it presents in the fourth position, we introduce one hand at the entrance of the *uterus*, and backward, to raise the face which lies against the base of the *sacrum* ; while with the other we exert a pressure on the *hypogastric* region of the woman, strong enough to force the *occiput* down towards the superior *strait*. Having accomplished this purpose, we may turn the woman a little on her right side, to rectify the axis of the *uterus*, too much inclined to the left, and make it parallel

parallel to that of the *pelvis*; then leave the delivery to the efforts of Nature.

1491. When we cannot reduce the head to its natural situation, or accidental circumstances require immediate delivery, we must turn the child, and extract it by the feet. For that purpose we must introduce the left hand in a state of *supination*, towards the posterior part of the *uterus*. We remove the face as we go along from the base of the *sacrum*, on which it rests transversely, carrying the head at the same time on the fore part of the left *iliac fossa*. Then we trace the left side of the child, to take hold of the feet, and finish the delivery according to the rules prescribed for the other positions.

A R T I C L E II.

Labours in which the Child presents one of the Sides of the Neck.

S E C T I O N I.

Of the Causes, Signs, and Differences of these Labours.

1492. LABOURS in which the child presents one of the sides of the neck, are less frequent than the preceding, though they proceed from the same general causes : which we must doubtless attribute to the particular form of those regions.

1493. It is impossible to distinguish the lateral parts of the neck, and judge of their situation relatively to the *pelvis* of the mother, before the opening of the membranes; nor then, without introducing the whole hand into the *vagina* : but we ought not to make such an examination till it is time to deliver ; that is to say, till the parts of the woman are well prepared, and the pains very strong.

1494. This

1494. This region itself offers no sensible mark to the touch, whereby we can distinguish it from others. It is only by the top of the shoulder, the *clavicle*, the angle of the lower jaw, and the lower part of the ear, which circumscribe it, that we can discover it: it can never present at the orifice of the *uterus*, without the greater part of these marks being near the circle of it.

1495. In the first position of either side of the neck, the ear and the angle of the lower jaw are placed on the edge of the *os pubis*, and the shoulder is over the base of the *sacrum*. The face is towards the left side of the mother when the right side of the neck presents, and *vice versa*.

1496. In the second position, the angle of the lower jaw and the ear are situated against the base of the *sacrum*, and the shoulder is over the *pubes*; so that the face answers to the right *iliac fossa* when the right side of the neck presents, and the left *iliac fossa* when it is the left side.

1497. The child is placed transversely over the *pelvis* in the two other positions. In the third, the side of the head is found resting on the left *iliac fossa*, and the shoulder on the other.

other. The face answers to the *sacro-vertebral symphysis* when the right side of the neck presents, and to the anterior part of the *uterus*, over the *os pubis*, when it is the left side.

1498. In the fourth position, the side of the head rests on the right *iliac fossa*, and the shoulder on the left; the face is placed transversely over the *pubes* if the right side of the neck presents, and over the *sacro-vertebral symphysis* when it is the left side.

SECTION II.

Of the Indications presented by these Labours, and the Mode of operating in them.

1499. WE have nothing to expect from the forces of the mother, when one of the sides of the child's neck presents at the orifice of the *uterus*, except after we have brought the head or the feet to the passage. But it is always so difficult to accomplish the first of these indications, that I would advise it never to be attempted, but to search for the feet in all these cases.

1500. The manner of operating is absolutely the

the same as in the different species of labour where one of the sides of the head presents. We must proceed in each position of the right side of the neck, as in that of the right side of the head described by the same numerical name; and in the different situations of the left side, we must follow the directions given for those of the left side of the head.

ARTICLE III.

Labours in which the Child presents one of the Shoulders.

SECTION I.

Of their Causes, Signs, Differences, and Indications.

1501. THOUGH these labours seem to depend on the same causes as the preceding, they are nevertheless much more frequent; which no doubt arises from the shoulder's being more salient and rounded, whereby it accommodates

itself better to the form of the entrance of the *pelvis*, than the side of the neck can.

1502. It is easy enough to discover the shoulder by the touch, by the *clavicle*, the angle of the *scapula*, the arm, and the ribs. When the hand comes down, it sufficiently denotes the presence of the shoulder at the orifice of the *uterus*, and may also demonstrate in what manner it is situated, and whether it be the right or left shoulder*.

1503. The shoulders may present in different positions at the orifice of the *uterus*. In the first, the side of the neck rests on the edge of the *os pubis*, and the side of the breast over the *sacrum*; so that the fore part of the breast is towards the left *iliac fossa* when the right shoulder presents, and towards the right *iliac fossa* when it is the left shoulder.

1504. In the second position, the side of the neck is over the superior edge of the *sacrum*, and the side properly so called is over the *pubes*; the breast answers to the right *iliac fossa* when the right shoulder presents, and *vice versa*.

1505. In the third, the neck and the head

* I shall speak of the exit of the child's hand in the sequel of this article.

rest on the left *iliac fossa*, while the side and the hip are over the right; so that the back is placed transversely under the anterior part of the *uterus* when it is the right shoulder, and on the posterior part of that *viscus* when it is the left.

1506. The child is also placed transversely in the fourth position of the shoulder; but the head lies in the right *iliac fossa*, and the lower part of the *trunk* over the left; the breast is under the anterior part of the *uterus* when it is the right shoulder, and over the *sacrum* when it is the left.

1507. The indication in these labours is easy to perceive: it consists in extracting the child by the feet. In all these cases we should be little founded in advising the reduction of the head to its natural situation.

S E C T I O N II.

Method of operating when the Child presents the Shoulder.

1508. WHEN the child presents the shoulder in the first of the four positions stated above, it is by no means indifferent whether we intro-

duce the right hand or the left into the *uterus* to search for the feet: especially when the waters have been some time evacuated. The right hand is exclusively proper when it is the right shoulder; and *vice versa*. In the first case we slide the hand along the posterior and left lateral part of the *uterus*, removing the shoulder from the entrance of the *pelvis*, pushing it as much as we can over the right *iliac fossa*; in order to get hold of the feet, and bring them successively into the *vagina*. If we meet with any difficulty in bringing them entirely down, after having brought them so far, we must remember to remove the shoulder again from the superior *strait*, in the same manner as I have frequently recommended the head to be removed from it.

1509. When the left shoulder presents, we introduce the left hand along the posterior and left lateral part of the *uterus*, in order to turn the child. We first remove the shoulder from the entrance of the *pelvis*, pushing it towards the left *iliac fossa*, and proceed in the rest of the operation with the same precautions as in the preceding case.

1510. In the second species, if the right shoulder presents, we introduce the left hand
along

along the right lateral part of the *uterus*, in order to find the feet, and turn the child in the easiest manner. We remove the shoulder from the entrance of the *pelvis*, as we go along; then the head, which is a little farther off; and direct them towards the left *iliac fossa*, while we incline the *fundus uteri* a little to the right side, by pressing externally on the woman's belly. When we have reached the feet, we bring them down successively; and if we meet with any difficulty in bringing them entirely down, we must remove the shoulder anew from the superior *strait*. The rest of the operation to be conducted as usual.

1511. We operate on the same principles in the second position of the left shoulder: but we must search for the feet with the right hand. We introduce it towards the left side of the *uterus*, and remove the head and shoulders from the superior *strait* as we go along, directing them over the right *iliac fossa*; while we incline the *fundus uteri* to the other side, by making a convenient pressure on the woman's belly. After that, we bring down the feet with the usual precautions, and finish the operation as in the preceding cases.

1512. When the right shoulder presents in

the third position, we must introduce the right hand along the posterior part of the *uterus*, passing it under the child's breast, which we must remove from the *lumbar column* of the mother, carrying it over the *os pubis*, till the shoulder be entirely disengaged from the superior *strait*; we then search for the feet, directing the fingers along the right side of the child. When they are brought down to the entrance of the *vagina*, we must pull a little while almost entirely on the left foot, taking hold of it with the fingers only, while with those of the other hand we push the shoulder farther and farther above the *os pubis*, in order to favour the flexion and rotation which the *trunk* should execute, that the breech may engage more freely. Afterwards we pull equally on both feet, and continue to extract the child, as if those extremities had presented naturally.

1513. When the left shoulder presents, in order to find the feet easily, and bring them down in the most favourable manner, we must introduce the left hand, nearly in a middle state between that of *pronation* and *supination*, along the left side of the child, and the anterior and right lateral part of the *uterus*, till the fingers meet with them. We then bring them
down

down successively, beginning with that belonging to the side which the hand has passed over, but taking care to make them both pass over the child's breast. We then pull almost entirely on the right foot, while with the fingers of the other hand we push the shoulder up above the projection of the *sacrum*. Afterwards we act equally on both feet with the usual precautions.

1514. The method of operating is not more indifferent in the fourth position of each shoulder, than in that which I have just described. When the right shoulder presents, we must introduce the right hand along the anterior and left lateral part of the *uterus*, bending it a little over the *pubes*, till the fingers can hook the feet, to bring them down successively, beginning with the right foot, and making them pass over the child's breast, behind the *pubes* of the mother. As soon as they are both in the *vagina*, we pull only on the left foot, while we push the shoulder upward and backward, with the ends of the fingers, as recommended in par. 1513; especially if we find any difficulty in bringing down that foot. We then act equally on both extremities, till the breech

is engaged, and finish the operation as in the other cases.

1515. When the left shoulder presents in the fourth position, we must slide the left hand into the *uterus*, carrying it in a state of *supination* under the child's breast. We disengage the shoulder by lifting it up above the edge of the *os pubis*; we afterwards direct the fingers towards the right side of the woman, tracing along the left side of the child, passing successively over the hip and thigh to the foot: having brought the latter into the *vagina*, we pass the hand again into the *uterus* to bring down the other; when it is brought as low as the first, we continue to pull on it till the breech is engaged. After that we pull on both equally, and extract the child according to the precepts already given.

S E C T I O N III.

Labours in which the Child's Hand presents first.

1516. I THOUGHT it better to class those labours in which the child presents one of its hands,

hands, under this article, than any other, though the hand may present when the shoulder is not placed over the entrance of the *pelvis*: because in those cases the hand rarely escapes alone from the *uterus*; which, on the contrary, very often happens in the different species of labour which make the subject of the two preceding sections.

1517. Were we only to consult the language of authors, as young practitioners who are destitute of experience do, we should be tempted to regard those labours in which the child presents the hand, as the most difficult that can be met with. But when we have got into the paths of truth, contempt for a crowd of precepts, as useless as shocking to humanity, will succeed to the fear they had inspired; and we shall see nothing in those same labours but ordinary cases: abstracting all which is foreign to their nature, and which can only be imputed to the ignorance of those persons who profess the art of midwifery, without having studied its principles.

1518. Among the precepts which have been transmitted to us concerning these labours, there are many which are contrary to the principles of the art, and to those sentiments of
humanity

humanity with which all men ought to be endued. Nothing can excuse the cruel practices which have been so often exercised on those unfortunate children who present the arm first, especially that which is but too frequently done at the present day.

1519. To throw more light upon what concerns these labours, I shall distinguish the different circumstances in which the hand may present; because we must not act in the same manner in all of them.

1520. The hand often presents at the orifice of the *uterus* before the membranes are open; at other times it does not appear and engage in it till long after the waters are discharged. The hand almost always accompanies the head in these circumstances, and cannot advance without the head's engaging in the *pelvis* at the same time: sometimes it appears along with the breech, or any other region of the child's surface. If it oftener denotes the presence of the shoulder at the orifice of the *uterus*, when it is descended very low, it is because the shoulder presents oftener than most of the other regions, the head, the breech, and the feet excepted.

1521. It is very rare that the presence of the

the child's hand obstructs delivery, when it accompanies the head, the breech, or the feet, at the orifice of the *uterus*, if the woman's *pelvis* be well formed; because in that case it is larger than is necessary for the passage of a head of the usual size. In most women, when the hand engages with the head, and continues to advance before it, it produces but feeble obstacles to the progress of labour, and even those obstacles do not exist every time it presents before the membranes open, or at the instant of their opening; because it generally recedes of itself, and the head engages alone: it is easier to explain this effect, than to comprehend why it does not always happen in similar cases.

1522. But though the presence of the child's hand can generally oppose but feeble obstacles to the descent and exit of the head, it is however right to prevent them; and it is better to push it back than let it come down, when we discover it betimes. I have often demonstrated, in presence of my pupils, that supporting the child's hand with the extremity of a finger, pressing it against the head, and directing it towards the face, while the head itself engaged in the superior *strait*, was sufficient to make it disappear. We do not push it up, but

hinder it from coming down, till the head has got under it; after which it will go up of itself. We must never attempt to push it back when the head is low down in the *pelvis*; but, if it visibly obstructs delivery, remove the arm from the side of the cavity, towards one of the *ischiatric notches*.

1523. It is only when the *pelvis* is defective, and a little narrow, that the exit of the child's hand can produce great obstacles to that of the head at the same time. But then there is the utmost necessity of pushing the hand above the head, if the time be not past; that is to say, if the head be not too far advanced, and wedged among the bones of the *pelvis*: for in that case it is sometimes better to deliver with the forceps*.

1524. It

* I find several examples of the application of the crotchet in similar cases; but only one of the application of the forceps, and that was after the *cranium* was perforated, and the brain evacuated. The two following cases tend to demonstrate that the presence of the arm does not prevent the use of the latter instrument, and that its utility is not less evident in this than in many other circumstances.

The 29th of January, 1776, I was called to a woman of low stature, the small diameter of whose *pelvis* was at most but three inches and a quarter at the brim. She was at her full time of her first child, and had been in labour twenty hours;

1524. It very rarely happens that both hands present with the head, and more rarely still that

hours; eighteen hours had elapsed since the waters were evacuated, and the pains were very strong. The child's head presented well, the *occiput* being turned towards the left *acetabulum*; but it was scarcely at all engaged, though the great tumefaction of the scalp made it appear far advanced. The fore-arm placed on the right side, and strongly pressed behind the *pubes*, made a deep depression in the scalp, like a gutter, and was itself so strangulated, that the hand was swelled in an extraordinary manner, and very livid. The labour having been very severe, her pulse was quick and hard, her face inflamed, respiration difficult, and the *abdomen* hard and painful. After having bled her a second time, for she had been bled three hours before, I endeavoured to push back the child's hand; but not being able to do it, and presuming that, if I could, she would not be delivered without a great deal of difficulty, on account of the narrowness of the superior *strait*, and the exhausted state of her strength; and foreseeing also too much danger in turning the child, and bringing it by the feet, I applied the forceps. I conducted them as I have directed for that position of the head, sliding the branches to the height of seven inches, at least, in order to take hold of it properly, having first pushed it up above the *strait*, to give more liberty for their application; and I brought the child alive: though it appeared a little fatigued, it so well recovered by the methods I used, that an hour after its birth it was as strong as any other. M. Legrand, D. M. Professor of Midwifery at Amiens, was present at this labour.

My brother applied the forceps in a similar case, June 25th 1785, in presence of two foreign physicians and surgeons, correspondents

that we are obliged to push it back, and turn the child, on account of the slight complication, so easy it is to remedy it. We ought not to recur to that often dangerous expedient, though dictated in our days by an accoucheur of a certain order*, unless the presence of the arm has turned away the head from the axis of the *pelvis*, and made it take a bad position: nor even then are we authorized to put it in

correspondents of the Royal Academy of Surgery at Paris, Messrs. Audiberty and Assaliny, who then attended my lectures. The child's hand had been without more than five hours; the arm appeared as far as the elbow, was swelled, livid, and cold; it came down on the right side of the *pelvis*, and a little behind the *pubes*. The head, large and solid, occupied the lower part of the *pelvis*; it had cleared the neck of the *uterus*, and had a tumor on the *vertex*, which entirely concealed the *sutures* and *fontanelles*, and prevented a discovery of its true situation. The woman was weak, and had a very small pulse: the *labia pudendi* were swelled, inflamed, and covered with vesicles. On one side, the woman was in danger of sinking before she was delivered, if it were not performed quickly; on the other, there was as great a risk of the child's life from any hasty measures, and the head could not be pushed back to bring it by the feet. My brother determined to use the forceps, and by their help preserved the lives of both. In four days, the tumefaction of the hand, the forearm, and head of the child was dissipated, and on the fifth the woman could sit up.

* M. de Leuric, edit. nouvelle, § 749, and following.

practice, but when we cannot re-establish the head in its natural situation, after having returned the hand into the *uterus*.

1525. The presence of the hand or the arm at the orifice of the *uterus*, in whatever direction it may be, presents no particular indication before the opening of the membranes ; and afterwards we have only to consider the principal region of the child which presents, and its position, to determine the mode of operating. A very modern author, fearing that the hand or elbow of the child should engage in the *vagina*, if the membranes open spontaneously, has published, that we ought, before that happens, *to introduce a hand into the uterus, on the side opposite to that where the head is, then pierce the membranes towards the fundus, and take hold of a foot, or feet, and bring them into the vagina* *. I cannot perceive very clearly what advantages could accrue from such a procedure, before recommended by *Peu* and *Smellie*, but in other cases, and with very essential restrictions ; it is much easier to discover its inconveniences ; and whatever the former may be they can never compensate the latter.

1526. It is certainly right to hinder the

* M. de Leurie, § 740.

hand or the arm of the child from engaging in the *vagina*, when those parts present before the opening of the membranes, and especially if the child is badly situated ; but that advantage may be obtained by opening the membranes at the orifice of the *uterus*, or by operating at the instant of their spontaneous rupture, if it happen in time : it is never necessary to introduce the hand behind the membranes, for the purpose of tearing them near the *fundus*, or in the part farthest from the orifice.

1527. It is true that we are not always called early enough to operate at that critical moment ; and often, when we first see the woman, the child's hand is without, or else the arm is bent in the *vagina*, so that it is the elbow which presents : often also it is tumefied and livid, and many efforts have already been made, either to return it into the *uterus*, or to extract the child. For in these circumstances the persons intrusted with the care of the patient will act differently, according to the principles they have imbibed, or the idea they have formed of the nature of the difficulties which obstruct the delivery.

1528. Some have imagined that they could extract the child by pulling at the arm ; others that

that we ought to return the arm into the *uterus*, in order to turn the child, and extract it by the feet. Some have torn off the arm, and even both of them, by twisting them round till they pulled them away from the body; and some, from a principle of humanity, have amputated the arm as high as possible, with sharp nippers, or otherwise, thinking amputation less cruel than tearing it off; or have contented themselves with making deep incisions into it, with a view of lessening its size, when it has been tumefied, and appeared gangrened. An accoucheur of the last age * advised passing a fillet round the body, by means of a blunt hook pierced, to bring down the breech, while the breast is pushed up; and in our days, another has proposed to search for the child's other hand, when we cannot penetrate the *uterus* to find the feet †.

1529. These different methods, which seem to be natural consequences of each other, could only be the fruit of the ignorance of the generality of women, who had almost the sole possession of the practice of midwifery, till to-

* *Peu, Pratique des Accouchemens*, p. 412.

† *M. de Leurie, Traité des Accouchemens*, edit. 2, p. 311, & suivans.

wards the middle of the last age; and of the errors of the men whom they called to their assistance.

1530. Those who know the relation which the dimensions of a child at full time, whose arm is out of the *uterus*, bear to those of a *pelvis* of the natural size, will see clearly what is to be expected from efforts exerted on that extremity, with a design to extract the body. If delivery has sometimes been terminated in that manner, it was because the child was very small, and the mother's *pelvis* large enough to let it pass double: these examples are extremely rare, and cannot serve for general rules*.

1531. Re-

* While I was digesting this article, my brother has furnished me with a case which may be of some utility.

A woman at full time, in her sixth pregnancy, having been safely delivered the 30th of May 1788 of a healthy child, but of a moderate size, soon after felt her pains come on afresh; they continued during three days, when a surgeon was called to deliver her of a second child, whose arm was engaged in the *vagina*. The surgeon, after having made a number of fruitless efforts to get hold of the feet, sent for my brother. Finding the woman very weak, with the face red and inflamed, the belly tight and bigger than in a common pregnancy at full time; the respiration laborious, the pulse small and concentrated; and seeing the child's left arm without so far that the shoulder came beyond the *labia*, and the top of the
break

1531. Returning the arm into the *uterus* would be much more laudable, if it could be done

breast appeared at the *vulva* ; judging also from the state of all these parts that the child was dead, he thought it not worth while to attempt turning it, but that it would be better to extract it by pulling gently and carefully at the arm : which he was able to accomplish without much trouble, and successfully for the woman, who very soon recovered. The child was very small, and putrid : without those conditions the delivery could not have been terminated in that manner, and the child must have been turned.

If this case shews us that there are circumstances in which it is right for the good of the woman to deviate from the established rules ; the London Medical Journal furnishes us with others which have appeared to merit much more attention, since in the same circumstances the child has been expelled by the efforts of Nature alone, and has disengaged by presenting the breech in some cases, and the feet in others, though the arm had been without several days, and the shoulder pushed as far as the *vulva*. *Dr. Thomas Denman*, who communicated these cases, and who had collected thirty of them in 1785, does not the less conclude that the best method of delivery when the arm presents, is to turn the child and bring it by the feet, when we can do it, says he, with any hope of saving the child, and without injuring the mother. If the precept for doing it were not founded on any fact, those which I have just quoted would be sufficient to support it, since of thirty children who have *turned spontaneously in this sort of cases*, to use the very expression of *Dr. Denman*, only one was born alive.

done in all cases : but except when the waters are recently drained off, we cannot accomplish it ; and all attempts for that purpose would be dangerous in proportion to the force employed. None of the methods proposed for returning the child's arm into the *uterus* are more fruitful in inconveniences, than that species of crutch invented by *Burton*, an English accoucheur †.

1532. The reduction of the arm, always

It is without doubt useful to be acquainted with facts of this kind, and we ought to be obliged to Messrs. *Doublet & le Roux des Tillets*, physicians of Paris, for having given us a translation of *Denman's* cases * : but lest us not conclude with him, that we ought not to turn the child when the arm presents, except we have hopes of saving it, and that we ought to let it come spontaneously when we are certain of its death : for that conclusion would be fatal to a great number of women. We ought not to leave it to itself, except when things are advanced as far as they are stated in *Denman's* cases, and when we see it disposed to come in that manner. I shall make no remarks on this spontaneous conversion of the child, though it furnishes a vast field for them.

* Journ. de Médecin. de Paris, tom. lxxii. pag. 502, tom. lxx. pag. 79.

† His work has been translated into French by M. le Moine, a physician of the faculty of Paris, who has enriched it with excellent notes.

difficult, and generally impossible, is not essentially necessary in any of these cases. It is not the presence of that extremity engaged in the passage, which opposes the introduction of the accoucheur's hand; that could not of itself hinder it from penetrating to search for the feet, and turn the child. It is the contraction of the *uterus* itself, the hardness of its neck, and the little dilatation of its orifice, which are the obstacles, if any are met with. It is easy to convince ourselves of this truth, if we consider the natural size of the woman's *pelvis*, the extreme dilatation of which the orifice of the *uterus* is susceptible, and that which it undergoes in all labours; and especially by comparing its dimensions when fully dilated, with the hand of the accoucheur added to the child's arm.

1533. The bigness of the arm, even when swelled to the greatest degree, can never entirely fill the passage, and that extremity, joined to the operator's hand, never surpasses the size of the breast or head of the child. Now if the orifice of the *uterus* is susceptible of so great a dilatation, and the *pelvis* is naturally large enough to give a passage to those parts; if we have seen them clear this double passage, though preceded or accompanied by an arm, or one of

the inferior extremities, as in those labours where the child comes with the breech foremost; how is it possible to believe that the arm, either in its natural state, or swelled, can oppose the entrance of the accoucheur's hand into the *uterus*? How has it been possible to persuade sensible persons, that the arm could entirely block up the passage, that it was right to amputate it, or tear it off, and that that operation was necessary?

1534. When we proceed to deliver at the moment of the evacuation of the waters, if the neck of the *uterus* is supple, and its orifice well dilated, we introduce the hand into it, and turn the child with as much ease as if the arm had not come down. In some cases, where the presence of the arm has seemed to oppose the greatest obstacles to the introduction of the hand, a sudden flooding has removed those obstacles, and given an opportunity of terminating, without farther trouble, a labour whose difficulties began to be looked upon as beyond the salutary resources of the art, from the repeated efforts that had been made in vain to surmount them. But what more could that hæmorrhage do, than relax the neck of the *uterus*, weaken its resistance, and dissipate the
natural

natural or spasmodic contraction of the whole body of that *viscus*? And what is there in that which art cannot operate with less danger than Nature has sometimes done it with accidentally?

1535. The true indication in all these cases consists in procuring this suppleness in the fibres of the *uterus*, whenever they do not enjoy that favourable and even necessary disposition for delivery, before we attempt to turn the child, whether the arm present or not. By accomplishing this first intention, the accoucheur will prepare himself an easy access to the child's feet, and will no longer think himself in the melancholy necessity of tearing off or amputating the arm of the unfortunate infant. He will also be convinced that it is not necessary to return it into the *uterus*, in order to finish the delivery.

1536. These manœuvres, the offspring of ignorance, and accredited by persons destitute of the principles of the art, were at most excusable only in the age which gave birth to their authors; and any practitioner who should exercise them now, would be a thousand times more reprehensible than they. They are not admissible in any case, because they can never

lead us to the end proposed. If they appear to have had some success, it has been only in appearance, and could not impose on persons properly instructed. The facility with which the feet have been found after tearing off the arm, though it could not be done before, must not be attributed to the absence of that extremity: this advantage has been owing only to the violence exerted on the neck of the *uterus*, and to the rents which have been generally made in it, by the efforts for tearing away the arm. The same dilatation might have been procured by gentler methods, and the child's limb preserved.

1537. Even the putrefaction of the arm, which might seem to leave no hope for the child but in amputation, cannot authorize us to practise it before delivery; because if it be indispensable, it can be done much better afterwards, than while the child is inclosed in the womb. Those practitioners who have taken off this limb, only because they thought from its putrefaction that the child was dead, will not appear less culpable in the eyes of the skilful, who know that this putrefaction is often only local, that it is no certain sign of death, and that many who thought they were
only

only mutilating a dead carcase, have mutilated, and afterwards extracted, a living child. Those examples shew us with what caution we ought to proceed in all these cases *.

1538. Whatever may be the state of the arm come down, it always requires less attention than the state of the body and neck of the *uterus*. If that has not been fatigued by ineffectual efforts, or by imprudent hands, if its neck is supple and well dilated, we must introduce the hand into it, according to the rules laid down for each position of the shoulders, in order to search for the feet, and turn the child, in the same manner as if the arm were not come down, taking care however not to hurt it, according to the rules given in par. 1544, and following.

1539. When the *uterus* is in a state of spasm, which is not very common, or is already strongly contracted on the body of the child, it must

* We meet with a crowd of examples of the tearing off, or amputation, of the child's arm, and even of both. The eighteenth century would not perhaps be that which would furnish the smallest number of them, if care had been taken to collect them: but none of them could inspire more horror than that related by de la Motte, obs. 228, pag. 664, edit. nouvelle; and that by Roederer, obs. iv.

be softened and relaxed by proper methods, such as bleeding at the arm, baths, &c. And we ought never to attempt to deliver, till we have satisfied this first indication, which is always the most urgent in these cases. I must observe here that we ought not to be afraid of letting blood copiously, when the case requires it, by repeating the bleeding at the arm; but that it would be dangerous to take for a rule on this subject the advice given by a young physician in 1774, at that time scarcely initiated in the elements of midwifery. Experience had not yet taught him how much was to be hoped or feared from those repeated bleedings, which he looked upon as the sheet-anchor of the woman *. The authority of *M. Solayres*, quoted by that physician in support of his opinion, ought not to influence our conduct; that accoucheur would have contradicted it himself, had he lived, for he never advised the repetition of bleeding to that degree which we might be led to believe, by reading the dissertation of *le Roy*. Besides, *Solayres* never

† *M. Alphonse le Roy*, *Journal de Médecine* du mois de Mars 1774. This was the first year that he began to practise and teach the art of Midwifery.

met with any cases where the child presented the arm, but what were favourably disposed for delivery ; which I can certify, having been a long time both his pupil and his friend.

1540. A state of spasm, or a strong contraction of the *uterus*, are not the only causes which may hinder us from passing the hand into it, in order to turn a child whose arm is without. Frequently we cannot do it, merely because the orifice of the *uterus* is but very little dilated, at the time that extremity comes down, and its edge is still too thick and rigid to permit it to open farther, without great inconveniences ; because the membranes have burst prematurely, and the pains have not yet had time to procure the requisite dilatation. All attempts to deliver immediately would not be less dangerous in this case, than when the *uterus*, fatigued by the length of the labour, or affected by a spasm, strongly opposes the entrance of the hand. They would only augment the difficulties naturally attendant on this epoch of labour, either by exciting the contraction of the neck of the *uterus*, or by depriving the parts of the woman of the *mucus* designed by Nature to soften and relax them, rendering

rendering them painful, and disposing them to inflammation, or by accelerating the tumefaction of the child's arm: which would render the case, already sufficiently disagreeable in itself, much more so. We must then wait till the fibres which constitute the edge of the orifice of the *uterus* are moistened, weakened and relaxed; in one word, till they acquire the necessary degree of suppleness for the requisite dilatation, or till that dilatation take place spontaneously, before we attempt to operate. During this delay, we ought to avoid touching the woman too frequently, as some do with a view of assisting the dilatation, lest we should produce the contrary effect. If the resistance of the neck of the *uterus* does not yield to the natural efforts of labour, bleeding at the arm, baths, and emollient injections may be of great use. We may give it the necessary time, because the presence of the arm never of itself offers any very urgent indication.

1541. These precepts will without doubt appear preferable to those which an accoucheur has just published the second time, on this subject. "The waters," says he, "have been drained off a long time, the parts are
" dry,

“ dry, the *uterus* is closely contracted on the
 “ child ; the woman is strong and robust : we
 “ must immediately pass the hand into the
 “ *uterus* along the arm which is come down,
 “ do it with a great deal of gentleness and
 “ force, search for the feet and bring them
 “ out.” And farther on—“ It is my custom
 “ to attempt passing the hand into the *uterus* ;
 “ if I cannot do it, I endeavour to disengage
 “ the other arm, and bring it into the *vagina*.
 “ This method of acting has constantly suc-
 “ ceeded with me ; reflection led me to prac-
 “ tise it in the first labour which I terminated
 “ in that manner. The second arm cannot be
 “ brought down without moving the child,
 “ and making it change its position, which
 “ facilitates the introduction of my hand *.”

1542. In this passage we find the most manifest contradictions, and precepts which even the authors of the earliest ages of the science would certainly disavow, if they had slipped from their pens. For how can we penetrate the *uterus* to search for the child's other hand, when we cannot enter it to find the feet ? Can

* M. de Leurie, *Traité des Accouchemens*, edit. 2, pag. 311, & suiv.

the intention of the accoucheur alter the nature of the difficulties ? and will they not be the same whether he propose to search for the arm or the feet ? The situation of the child when one arm is out of the *uterus*, is generally such that the other is farther from the orifice than the feet are ; and it is only in some very rare circumstances, when the second hand, crossing the breast or back, lies near the orifice, that it can be hooked without the accoucheur's introducing all his own into the *uterus*. Supposing it to be so, and that we could hook the child's hand with the ends of the fingers, and bring it below the orifice, so as to be able to take hold of it, and pull it strongly, could we dare to promise ourselves that we should by that means make an advantageous change in the position of the *trunk*, in the case above stated, in which the author represents it as strictly compressed by the *uterus* on all sides ? Such practice could never be the fruit of reflection : it is founded in error, but the limits of this work do not permit me to enter farther into the demonstration of it.

1543. From what I have said concerning labours in which the child's hand is without, and the arm engaged in the orifice of the *ute-*

rus, we may establish the following principles :

1. That in all these cases we ought to attend more to the state of the *uterus*, than to that of the extremity of the child, which of itself presents no essential indication, except sometimes after delivery, when it happens to be tumefied, livid, or gangrened: 2. That we ought never to attempt to return it into the *uterus* when the waters have been some time evacuated: 3. That its reduction, though possible at the time the membranes open, that is, at the instant of its escape from the *uterus*, is not essentially necessary: 4. That it is contrary to the principles of the art to tear off or amputate the limb: 5. That it would be absurd when the child is living to think of extracting it by pulling at its arm, as well as to attempt to search for the other hand, when the strong contraction of the *uterus*, and the little dilatation of its orifice prevent our entering it to search for the feet: 6. That it would not be rational in these cases, to hook the other hand and pull at it, in order to change the position of the child's *trunk*, even if it should be near enough to the orifice to be brought out by insinuating some of the fingers only into it: 7. That we must always search

search for the feet and turn the child, but that it would be dangerous to attempt it before the parts of the woman are well prepared for it, either by nature or art.

1544. It often happens in these cases, that the child's hand disappears, and seems to return into the *uterus*, in proportion as the feet descend; this effect, the cause of which is easily discovered, is not always fortunate for the child. If the arm sometimes places itself so in the *pelvis*, as afterwards to rise to the side of the head, in the same manner as when the child presents the feet naturally; at other times also, the arm folds in the *pelvis*, and the elbow butts against some point of the sides of that cavity, and obstructs the descent of the *trunk*, or else exposes the *humerus* to be fractured.

1545. To avoid these inconveniences, we must take care to make this extremity descend in the same proportion as the *trunk*. Therefore if it disappear entirely, as soon as the thighs are disengaged, we ought to search for the hand again, and keep it extended along the side of the body. It would however be more certain and expedient to apply a fillet on the child's wrist,

wrist, before we search for the feet, as I have recommended long since, in a little work published for midwives *. We may reap a double advantage from this fillet; 1. that of fixing the child's arm lengthwise against one of the sides of the *pelvis*, in order to prevent its folding in that canal, while we introduce the hand into the *uterus* to search for the feet; 2. that of preventing the inconveniences stated in the preceding paragraph. If we employ the fillet, we must take care not to pull it while we endeavour to bring down the feet, lest we fix the shoulder at the entrance of the *pelvis*, at a time when it must necessarily recede from it; but remember to do it as soon as the breech is engaged in the passage.

* Principes sur l'Art d'Accoucher, en Faveur des Sages-Femmes de Provinces; publiés pour la première fois en 1775, & par ordre du Gouvernement, en 1787.

ARTICLE IV.

Labours in which the Child presents one of its Sides.

SECTION I.

Of their Causes, Signs, Differences, and Indications.

1546. It is as difficult to assign the particular causes of these labours, as of the preceding: as to the general causes, they seem to be the same.

1547. We may easily distinguish the lateral part of the child's breast, by the ribs, the *axilla*, the arm, and the hip. With the same facility we may distinguish whether the right or left side present, by attending to the particular situation of all these parts, relatively to the entrance of the woman's *pelvis*.

1548. In the first position of either side, the *axilla* of the child rests on the *pubes* of the mother

ther, and the hip over the *sacrum*; the breast is towards the left *iliac fossa* when the right side presents, and towards the right *iliac fossa* when it is the left side.

1549. In the second position, the *axilla* is placed over the base of the *sacrum*, and the hip over the *pubes*; the breast answers to the right *iliac fossa* when it is the right side, and *vice versa*.

1550. In the third, the child's *trunk* is situated across, the *axilla* resting on the left *iliac fossa*, and the hip on the other; so that the breast answers to the posterior part of the *uterus*, when the right side presents, and is placed transversely under the anterior part of that *viscus*, when it is the left side.

1551. In the fourth position of each side, the child's *trunk* is likewise placed transversely with respect to the *pelvis*, the *axilla* resting on the lower part of the right *iliac fossa*, and the hip on the left; the back on the posterior part of the *uterus*, when it is the right side, and under the anterior part of that *viscus* above the *ossa pubis*, when it is the left side.

1552. The general indication in these different positions of the child, consists in disengaging the feet and extracting it. This indica-

tion cannot be counterbalanced by that which we should in vain endeavour to accomplish, were we to attempt reducing the head to its natural situation. As to the mode of operating, it must be varied a little in each of these positions.

SECTION II.

Method of operating in the different Species of Labour in which the Child presents one of its Sides.

1553. ALTHOUGH it is in general easy to bring the child's breech to the entrance of the *pelvis*, and into the most favourable situation for its exit, when it presents either of its sides in the position stated in par. 1548, it is better to search for the feet; because that method is more certain, and always spares the woman a great number of pains.

1554. When the waters have been recently discharged, we may introduce the hand under the child's hip, along the posterior part of the *uterus*,

uterus, till we can take hold of both feet which lie against the breech, and bring them down; while with the other hand we press on the woman's belly, to diminish the anterior obliquity of the *uterus*, and by that means concur in reducing the great diameter of the child's body to the direction of the axis of the *pelvis*. This procedure, always easy to execute at that time, may become so difficult when the waters have been long evacuated, that we may be obliged to have recourse to the following.

1555. We then, if the right side presents, introduce the right hand towards the posterior and left lateral part of the *uterus*, sliding it along the hip, and afterwards the thigh of the child, to reach the feet, and bring them down successively, as in the first position of the right shoulder: and proceed with the rest of the operation, as in that case. When the child presents the left side, we must introduce the left hand, and search for the feet along the right lateral part of the *uterus*, as in the first position of the left shoulder.

1556. When the right side presents in the second position stated in par. 1549, we introduce the left hand into the *uterus*, towards the right *iliac fossa*, till the fingers reach the feet,

which we then disengage as directed in the second position of the right shoulder. If we meet with any difficulty in bringing them down, we must pull most, and even almost entirely on the left foot, while we remove the shoulder from the base of the *sacrum* by pushing it up with the ends of the fingers.

1557. When the left side presents at the orifice of the *uterus* in this position, we must introduce the right hand to search for the feet: but we slide it up towards the left *iliac fossa*, observing the same precautions as were given for the second position of the left shoulder.

1558. When we have an opportunity of operating at the instant the membranes open, when the child presents one of its sides in the third position, we find little difficulty in it, because the child is not then strictly embraced by the *uterus*, and it is easy to get hold of both feet, by introducing the left hand above the right *iliac fossa*, where they are situated. But it is not always so when we are not called till that favourable moment is passed, and the waters have been long evacuated. The obstacles which we then meet with are in proportion to the immediate contraction of the *uterus* on the child's body; and the method I have just recommended,

commended, is often neither the most simple or certain that may be executed.

1559. In that case, I think it would be better to proceed in the following manner. If the right side presents, we may introduce the right hand into the *uterus*, under the child's breast; from whence we direct it a little obliquely towards the right *iliac fossa*, passing along the right hip and thigh of the child, to bring down first the foot belonging to that side into the *vagina*. We then carry the hand towards the second foot, and, after bringing it down as far as the first, pull almost entirely on it for a little time, while with the extremities of the fingers of the other hand we raise up the shoulder more and more towards the fore part of the *pelvis*, to favour the rotation of the *trunk* and the descent of the breech; and finish the operation as in other cases.

1560. We must introduce the left hand, and in a different direction, in order to reach the child's feet, when the left side of the breast presents in the third position. We then insinuate it under the anterior and right lateral part of the *uterus*, along the left hip and thigh of the child, till we can reach the foot of that side and bring it down, making it pass before

the child's breast, and behind the *pubes* of the mother. We afterwards disengage the right foot in the same manner; and for a little while act principally on that, while with the ends of the fingers of the other hand we push up the shoulder above the *sacrum*. For the rest of the operation, what I have said concerning the third position of the left shoulder may be consulted.

1561. The different methods of operating when the child presents one of its sides in the fourth position, are the same with those I have just described; except that here we must execute with the right hand all that is there directed to be done with the left, and *vice versa*.

1562. If the waters are but just drained off, we must search for the child's feet, by introducing the right hand into the *uterus*, directing it towards the left *iliac fossa*, where they are; and while we bring down those extremities, we must make a proper pressure, with the left hand, on the right side of the belly, with a view of bringing the child's body to be parallel with the axis of the *pelvis*, and of favouring the descent of the breech.

1563. When the waters have been long evacuated, and the child is strictly embraced
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by the *uterus*, if the right side presents, we must also introduce the right hand, but in a different direction. We first insinuate it under the anterior and left lateral part of the *uterus*, bending it so as to be able to take hold of the right foot which is over the *pubes*, and bring it into the *vagina*, making it pass over the breast, as directed for the fourth position of the right shoulder. The rest of the operation to be conducted as in that case, both in bringing down the second foot, and finishing the delivery.

1564. On the contrary, when the left side presents, we introduce the left hand, in a state of *supination*, under the child, directing it along the hip and left thigh, to reach the feet and bring them down, as in the fourth position of the left shoulder.

ARTICLE V.

Labours in which the Child presents one of the Hips at the Orifice of the Uterus.

SECTION I.

Of their Causes, Signs, Differences, and Indications.

1565. THE hips present a little oftener at the orifice of the *uterus*, than the lateral parts of the breast and of the neck, but more rarely than the shoulders. An obliquity of the *uterus*, and a superabundance of the *liquor amnii*, are sufficient to produce these positions, whether those two causes exist at the same time, or only one of them.

1566. We cannot easily distinguish the hip before the opening of the membranes; because we cannot then pass the finger over a sufficient extent of that region, to discover the marks which would dissipate all uncertainty; such as
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the *crista* of the *ilium*, the last of the false ribs, the *anus*, &c. for the species of tumor which the hip forms at the orifice of the *uterus*, very much resembles that which the superior and lateral parts of the head present to the touch, when the hairy scalp is a little tumefied, &c.

1567. Each hip may present in four different positions.

1568. In the first position, the child's breech rests against the posterior margin of the *pelvis*, over the base of the *sacrum*, and the *crista* of the *ilium* against the *pubes*; so that the breast answers to the left side of the *uterus*, when the right hip presents, and *vice versa*. This position is more frequent than the others.

1569. In the second, which is the most uncommon, the child's breech is against the *pubes*, under the anterior part of the *uterus*, and the *crista* of the *ilium* answers to the *sacrum*; so that the breast is towards the right side of the woman when the right hip presents, and *vice versa*.

1570. In the third position, the child's breech is placed on the bottom of the right *iliac fossa*, and the *crista* of the *ilium* is turned towards the left which supports the body; the breast
answering

answering to the posterior part of the *uterus* when the right hip presents, and to the anterior part when it is the left.

1571. In the fourth position of the hip, the breech is situated on the margin of the *pelvis*, on the left side, and the body of the child over the right *iliac fossa*; the breast being under the anterior part of the *uterus* when the right hip presents, and on the posterior part of that *viscus* when it is the left hip.

1572. Delivery is not always impossible without help, when the child presents the hip: it may sometimes be performed by Nature alone, or with only those aids which are generally required in labours where the breech presents. Experience has frequently convinced me of the truth of this assertion.

1573. As the presence of the hip at the orifice of the *uterus* is always the effect of an inclination of the great diameter of the child's body, relatively to the axis of the *pelvis*, and as that obliquity may be a consequence of that of the *uterus*, or of the great quantity of water contained in it, it may disappear in the progress of labour, in proportion as that *viscus* contracts, and the waters drain off; so that the hip may
recede

recede from the superior *strait*, and the breech take its place, which may enable the woman to force the child down and expel it.

1574. Though this change of direction, which is absolutely necessary for the exit of the child, sometimes takes place spontaneously, or by means of the situation the woman keeps in during labour, sometimes also we cannot obtain it without introducing the hand into the *uterus*. In that case we ought not to content ourselves with bringing the breech to the entrance of the *pelvis*, but ought always to bring down the feet; because that method is more easy and certain, and besides spares the woman a great number of pains.

S E C T I O N II.

Method of operating when the Child presents one of the Hips.

1575. WHEN we have discovered that position of the hip which constitutes the first species of this kind of labour, before the membranes

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branes are open, we must recommend to the woman to keep herself on her back, with a view of diminishing the anterior obliquity of the *uterus*, and recalling the child's breech to the entrance of the *pelvis* in one of its best positions: which will permit it to descend, and dispense us from the necessity of introducing the hand to procure that change.

1576. If the child be very large, relatively to the size of the *pelvis*, if the labour has continued a long time, or is accompanied by any pressing accidents, we must not limit ourselves to regulating the situation of the woman; for in all these cases we ought to search for the feet and deliver: even supposing the breech might be brought to the entrance of the *pelvis*, as I have already advised when the breech itself presents in the most favourable manner. For that purpose we introduce the hand along the *sacrum*, over the child's breech, to hook the feet which lie against it, and bring them down; while with the other hand we exert a pretty strong but cautious pressure on the woman's belly, to diminish the anterior obliquity of the *uterus*, which always exists in this case.

1577. Though

1577. Though in this position the choice of the hand seems pretty arbitrary, it may however be useful to prefer the right when the right hip presents, and *vice versa*: because it would be easier to find the feet, if, by chance, they should be extended towards the breast, as I have several times found them, instead of lying against the breech.

1578. We have nothing to expect from the efforts of Nature in the second position of the hips: we must introduce the hand into the *uterus* as soon as the parts of the woman are well disposed for it, to search for the feet. If we find too much difficulty in disengaging them from over the *pubes*, which sometimes happens when the waters have been long drained off, we must hook the knees with the fingers, and bring them down, and finish the delivery as if those parts had presented naturally.

1579. When the right hip presents in the second position, we must introduce the left hand towards the anterior and right lateral part of the *uterus*, if we would hook the knees with the ends of the fingers, or disengage the feet. On the contrary, we must use the right hand in the second position of the left hip, and
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take care to insinuate it towards the left side of the *uterus*.

1580. When the child presents either the right or left hip in the third position, the breech may place itself at the entrance of the *pelvis*, without any other assistance than making the woman lie on her right side, to bring back the *fundus* of the *uterus*, which then deviates too much to the left. We may obtain the same advantage in the fourth position, by making the woman lie on her left side.

1581. If this precaution does not suffice to produce the effect proposed, or if other reasons forbid us to content ourselves with bringing the breech by this means to the entrance of the *pelvis*, and then leaving the expulsion of the child to the efforts of Nature, at least till the breech appears without, we must in the third position of either hip introduce the left hand into the *uterus*, above the right *iliac fossa*, to bring down the feet. We might also, with the same view, use the right hand when the right hip presents; but we should succeed with a little more difficulty than with the left, and it would be necessary to disengage the feet in the manner directed for the third position of the right side.

1582. The

1582. The right hand is preferable to the left in the fourth position of the hips; we then insinuate it towards the left *iliac fossa* of the mother, to disengage the feet which are there, and finish the delivery as usual.

P A R T IV.

Labours of the third Order, or Laborious.

1583. **ALTHOUGH** the term laborious may seem to be applicable only to those labours which are exceedingly difficult, and which cannot be terminated without the help of instruments, I shall however make use of it to signify all those which compose this third order, and which could not be performed in a more advantageous manner, than with some of those same instruments. I confess that among those labours, there are many which are less difficult, less painful, and less dangerous than the greater part of those which I have described under the name of preternatural, and even than many of those which are usually considered as natural.

1584. Though the impossibility, or the danger of operating with the hand alone, constitutes the distinguishing character of laborious labours; though the absolute or relative necessity of employing some instruments to termi-

nate them, establishes a kind of relation among them, yet they present us with very great differences, and their species are not less various than those of the two preceding orders: those differences arise, as we shall see hereafter, from the nature of the circumstances, or accidents, which render those labours impossible or dangerous without the help of instruments; from the diversity of those instruments; from the parts of the mother, or of the child, on which they must be applied; from their mode of acting, and from the consequences of their application, &c.

1585. In order to lay down what relates to this latter order of labours with more clearness and method, I think it right to treat first of the instruments necessary to be employed in them. Some I shall only mention; but I shall dwell on the description, and on the mode of acting of the forceps, and the lever, as being of more general and familiar use.

C H A P. I.

Of the Instruments necessary in the Practice of Midwifery, and particularly of the Forceps, and the Lever.

1586. **T**HE instruments used in the practice of midwifery have been so multiplied, that they are as numerous as those destined to all the other branches of surgery ; and every day produces new ones. Whether from a desire of acquiring fame, or of enriching the art by augmenting the number of instruments, as many accoucheurs as we have had a little in vogue, so many have we had who have produced some of these instruments : as if it had required less genius to invent new ones, than to perfect those already in use, or to use them such as they were. If reason and a more accurate study of the principles of the science do not check the ardour which too many practitioners shew for these productions, it is to be feared that this art, as simple in itself as salutary, may one day appear the most difficult and
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the most uncertain of all arts ; or that the authors of our time may be reproached with having understood it much less than those who preceded them.

1587. Notwithstanding the reform which several accoucheurs of distinguished abilities have made in this article, there are still many instruments whose utility is not so evident as the danger which seems inseparable from their application ; and their number might be still farther reduced with advantage. Those whose effects, more or less salutary, cannot be contested, differ from each other, as well in their materials as in their form, and mode of acting. They may be arranged under the four following heads.

1588. The first comprehends the fillet only ; the second, the forceps, the lever, and the *pince à faux germe* ; the third, crotchets, different species of *tire tête*, and other cutting instruments, applicable to the child while inclosed in the womb ; lastly, the fourth, all those used in the Cæsarean, or other operations performed on the parts of the woman only, with a view of favouring delivery.

1589. I shall follow this division of the instruments, in the exposition of the cases which re-

quire their use. I shall begin with the more simple, and proceed gradatim to the more difficult ; with those which only require the gentlest of these instruments, which act without injuring the continuity of the parts on which they are applied, and whose effects are almost always as salutary to the mother as the child ; such as the fillet, the forceps, and the lever : and then proceed to the use of those contained under the third and fourth heads.

1590. Whether we consider these instruments relatively to their matter, or their mode of acting on the parts to which they are applied, and their effects, none will appear more simple or more gentle than the fillet ; but at the same time none will appear less useful, if we attend to the circumstances which require the use of each of them ; for there is perhaps no case where we might not terminate the labour without it. Its utility, in almost all those cases for which I have recommended it, is only relative, whereas the necessity of using the others is but too often absolute. I shall but just recapitulate what I have already said concerning the fillet, in the second and third parts of the work.

1591. That which I sometimes use, is nothing

thing more than a tape or ribbon whichever first comes to hand, when the necessity of using it appears. It only serves to fix certain parts of the child, after they are disengaged from the *uterus*, while we search for others; as recommended in paragraphs 1160, 1301, &c.: or to pull those parts which we cannot hold with the hand, or hook with the fingers, except with great difficulty; as observed in paragraphs 1244, 1257, 1302, &c. The fillet can only be applied to the child's feet, to the hand, in the bend of the armpits, of the hams, and of the groins. Though the use of it is rarely indispensable, practitioners frequently have recourse to it in preternatural labours: but the man of skill hardly ever reaps any other advantage from it than saving himself a little trouble and embarrassment.

A R T I C L E I.

Of the Forceps, and their general Mode of acting.

1592. THE name alone of this instrument might give to those who know its true signification, a general idea of its form and mode of acting: it is besides in such common use, that

I might dispense with any description of it. It is a species of pincers or lever, composed of two branches perfectly similar ; except at the place of their junction, where we remark, in one of them, a moveable pivot, and in the other, an opening fit to receive it *.

1593. From this difference arise the names which serve to distinguish the two parts of the forceps ; that which has the pivot is called the male branch, and the other the female.

1594. Each of them represents, in one third of its length, or thereabouts, a kind of spoon, open nearly through its whole extent ; round the inner edge of it runs a flattish ridge, which might be effaced with advantage : for though it may give the instrument a little firmer hold on the head, sometimes it hurts the teguments, bruises and tears them, so as to denude the bones. The rest of the branch forms the handle of the instrument, the extremity of which is terminated by a blunt hook, an inch long, and a little curved. We have already seen the benefit which may be derived from these hooks in some particular cases (see par. 1261) ; and they would be much fitter for the use I have made

* It will be understood that I speak here only of the French forceps, and particularly of those of *M. Levret*.

of them in those cases, if they only described a gentle curve, or even almost a right angle with the body of the instrument, if they were a little narrower, more rounded, and terminated somewhat in the shape of an olive.—See par. 1261.

1595. The invention of the forceps is not very ancient. Without assigning the exact epoch of it, I shall remark that they were scarcely known before every accoucheur eagerly applied himself to making alterations in them: but not all with the same success. Though some have brought them nearer perfection, others have made them more imperfect. None have laboured more successfully in this way than *Smellie* and *Levret*: so much did they change the form, and extend the advantages of this instrument, that we might even look upon them as the authors of it. Among the corrections they made in it, none is of more importance than the double curve which they added to it: but it would be difficult to decide, to which of those two equally celebrated men the art is most indebted in this respect.

1596. The English forceps nevertheless differ a good deal from those of *M. Levret*. Those of the latter appear to me more perfect, and have

have advantages which would be vainly sought in the former. Some changes might however still be made in them : but perhaps, and I perceive that it would be so, in perfecting them in one respect, we should render them more imperfect in another. As it is not the instrument which operates, but the hand which directs it, the understanding easily supplies those little defects ; and unless they appeared greater, I should leave it to those who are proud of inventing new instruments to correct them.

1597. Some have lengthened *M. Levret's* forceps several inches, and others have effaced the ridge which runs along the interior edge of their blades ; others have increased the new curve ; while some, by altering the form of its branches, by dividing them, and substituting a number of pieces to the simple pivot which fixed them in their junction, have made it a most complicated instrument, without rendering it more recommendable. If the former have increased the advantages of the forceps, by making really useful corrections in them ; the latter have rendered their use more difficult and less certain on some occasions.

1598. The forceps which I prefer are two inches longer than those of *M. Levret* :
which

which renders their new curve much easier*. We shall see in the sequel the reasons which lead me to choose them so. Experience has convinced me, notwithstanding the vain clamours of ignorance, that they have no more inconveniences, in skilful hands, than the shorter forceps, and that there are resources in them, in many cases, which cannot be obtained from the latter.

1599. The forceps may be considered as the most useful of all surgical instruments, for no other has, like that, the advantage of preserving the lives of several individuals at once, without hurting either of them; but on that very account, perhaps, no other instrument will appear more fruitful in inconveniences. If it should be proved, and I am not very far from believing it, that the forceps have been more fatal than useful to society, that they have destroyed more than they have saved from inevitable death, I should nevertheless look upon them as the most important discovery that has ever been made in the art of midwifery. Those

* By the new curve of the forceps, we are to understand that which is placed on their edges: so *M. Leuret* explains it. The addition in length is not my invention; we are indebted to *M. Pean* for it.

who regard them as an instrument absolutely dangerous, and entirely useless, neither know their mode of acting, nor the difficulties of the art, and have doubtless judged them according to the abuse which they themselves have made of them; and have forgot that the most salutary instrument often becomes murderous in the hands of ignorance and prejudice.

1600. The use of the forceps has bounds, beyond which they become useless, and even dangerous; and the manner of using them is not arbitrary. Their application is subject to certain rules, and it is on the strict observation of those rules, that the advantages to be expected from them depend. When applied without method, or principles, far from obtaining the good expected from them, they sometimes only serve to perpetuate the obstacles, and even to augment them in proportion to the efforts made to conquer them; and, in many cases, we cannot terminate a labour by their assistance, which Nature would easily have done, if she had not been counteracted.

1601. The forceps were at first proposed only to extract the head stopped in the passage, in those cases where it was suspected to be locked; if we consider their form, dimensions,

and

and relation to all the other parts of the body, we shall see, in fact, that they are proper only in that sort of cases; but their use, then too limited, is since become a little more general. Besides that practitioners have recommended them for taking hold of the child's head above the *pelvis*, when it cannot engage in the passage; others have prescribed them for extracting it after the exit of the *trunk*, and for disengaging the breech, when it is too far advanced and too closely wedged, to be expelled by the natural powers, or to be pushed back to search for the feet.

1602. If the forceps may be reckoned among the resources of the art in this latter case, it can only be as a means of extracting the breech, but not of saving the child's life. If they should be applied in that case, what disorders would they not produce within the breast and *abdomen*? The extremities of the forceps acting on the sides of those cavities, reduces them transversely to the breadth of an inch and a half, or two inches, if we grasp them sufficiently tight, to get a proper hold for extracting the child; as I have proved on a great number of dead children. We often fracture some of the ribs, strongly compress the *viscera*, and contuse
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the liver, which is very voluminous at that epoch, if we advance the blades to that height, on the child's sides; and if we do not, it would be in vain to expect a firm hold with the instrument.

1603. Even the death of the child, if we could be certain of it when the breech is strongly wedged in the passage, though it would destroy the apprehensions of danger from the pressure, ought not however to determine us in favour of the forceps; because there are other methods more simple, and a great deal more certain. The forceps themselves present them to us in the extremities of their branches: the blunt hooks, which terminate them, are exceedingly convenient in these cases, and might be made much more so by means of the little alterations suggested in par. 1594*.

1604. The forceps then ought never to be

* From the utility which I have often found in them on similar occasions, I constructed a pair of forceps in the form of crotchets, for extracting the breech stopped in the passage. I did intend to publish them with some alterations, which might make them answer some other views: but I have not been able to get over my repugnance for every thing that tends to increase the number of our instruments, which has always appeared to me to be already too great.

applied

applied but with a view to extract the head; and their advantages and inconveniences are proportionate to the relation which exists between the dimensions of that part, and those of the *pelvis*. When that relation is in the natural order, the forceps, well directed, do no injury to the mother or child; but when that natural relation does not exist, and the head cannot pass through the *pelvis* without a considerable reduction of its size, both of them are more or less affected.

1605. It is commonly thought that the forceps cannot compress the head in one direction without forcing it to lengthen in another; and that these changes take place in a reciprocal proportion; that the capacity of the *cranium* suffers no diminution, and that the brain is but slightly affected by them. Such advantages would render the forceps much more recommendable still than they are; but these are very far from being their real effects. We cannot, by compressing the head in one direction, oblige it to lengthen in another; or if we do, it is so little, that it cannot balance what it loses in the first direction. If the forceps compress it four lines only, the cavity of the *cranium* almost always diminishes in the same proportion,

proportion, and the brain is exceedingly affected by it. To put these truths out of doubt, let us suppose the head locked and fixed lengthwise between the *pubes* and *sacrum* of the mother: a species of locking for which this instrument has been particularly recommended. From the manner in which most practitioners still apply the forceps, it should seem that they imagine the head is always in this position.

1606. If we then apply the forceps on the sides of the head, compressing it from one *parietal protuberance* to the other, we certainly shall not force it to lengthen from the *occiput* to the forehead, since those two parts are in very close contact with the *pelvis*. If the forceps, in this case, tend to force the *occiput* forward, and the forehead backward, it can only increase the force with which they are pressed against the *pubes* and *sacrum*; for the interior circle of that cavity remains always the same. Neither can the head, thus fixed, lengthen from the summit to the base, except a very little; the sinus of the instrument being much too narrow downward for that effect to be very remarkable, even if the disposition and solidity of the bones were more yielding: what it gains that way can by no means compensate what it loses
in

in the direction in which it is compressed. If then the forceps, applied in this manner, diminish the transverse thickness of the *cranium*, it is only by depressing the *parietal* bones, by flattening them, and much more by making them ride one over the other at their superior edges : which cannot happen without contracting the cavity which contains the brain, compressing it, and more or less deranging its organization.

1607. We must not argue concerning the effects of the forceps from those which we see the head sometimes suffer in passing naturally through a narrow *pelvis* ; because there is scarcely any parallel between the two cases ; the form of the mould, which such a *pelvis* presents to the head, being very different from that of the forceps, and the powers of art being never so gradual, nor so well combined as those of Nature.

1608. The head pushed forward for hours together by the natural agents of delivery, becomes insensibly softer and more pliable, and at length acquires the necessary dispositions for moulding itself to the form of the *pelvis*. If it then flattens in one direction, it really lengthens in another ; the form of the *cranium* only

changes, and its cavity contracts so little, that the brain is scarcely affected by it. I have taken children whose heads seemed to have lost nine or ten lines of their natural thickness, in passing the superior *strait*, and seemed to have lengthened in the same proportion, without comprehending the tumor formed in the scalp, before the posterior *fontanelle*. The heads of several of these children were above six inches and an half, and even seven inches long, from the chin to the top of the aforesaid tumor; while the thickness from one *parietal protuberance* to the other was but two inches and an half, or two and three quarters in some, and three inches in others*. In a few hours after birth, the heads of these children spontaneously recovered the thickness which they had lost in delivery, and lost the length they had acquired by it. The head not only loses its form thus, in some cases, but sometimes even bends in the manner of a crescent, so that

* *M. Solayres* informed us one day in his lectures, that he had taken a child the evening before, whose head, at the moment of birth, was eight inches long all but two lines, measured between the two points indicated above; while it had preserved but two inches five or six lines in thickness. The day after, this head had recovered the usual dimensions.

one of its sides shall be a little concave, and the other rounded, without at all affecting the child's life.

1609. But this good fortune is so far from attending all children who are obliged to traverse a *pelvis* of less than three inches in the small diameter, that the greater part of them perish before they are born. Among those which I have dissected, some had the bones of the *cranium* fractured, with depression; in others, those same bones were profoundly depressed without fractures; and in all, the *pericranium* and *dura mater* were detached from the *parietal* bones in the environs of the *sutures*; the substance which unites those bones was torn; which proves that they had rode considerably over each other; there were deep *engorgements* and extravasations in the *cranium*, as well as on several parts of its external surface. The fate of these children therefore will be different, according to the degree of solidity in the bones of the *cranium*, and of firmness in the *sutures*.

1610. The effects of the forceps always to be dreaded on the child's account, when there exists a disproportion between its head and the mother's *pelvis*, must be more or less so in pro-

portion to these different states of the bones of the *cranium*. Those accoucheurs who imagine that we may with that instrument diminish the size of the head six lines and more, without danger, in all probability form their judgment from some observations similar to those I have just stated in par. 1608, and not from the effects of the forceps themselves. They estimate the degree of compression which the head suffers between the blades of the instrument, by the degree of force which they apply to extract it; by the separation of the external extremities of the branches, and the degree of approximation which they undergo in the operation, or the space they pass through to come into contact. For one fortunate case, which they produce in support of their assertions, they perhaps pass over ten in silence, which, though unfortunate, might have instructed us equally. The following experiments may serve to throw some light on the degree of reduction which the head may undergo between the blades of the forceps.

1611. These experiments were repeated on nine children, who died immediately, or a few hours after their birth; and were of different sizes, though all at full time. To render them
more

more conclusive, we took care to restore to the heads of these children the same suppleness which they had when alive, by plunging them into warm water, and moulding them with the hands; and we made use of the lengthened forceps mentioned in par. 1598. We provided three pair, all alike, of the best construction and temper. We applied them on the transverse thickness of the head, as I recommended them to be always applied; and afterwards according to its length, that is, one branch on the middle of the forehead, descending from the *fontanelle* to the root of the nose, and the other on the *occiput*; in order to know the reduction we could procure in those two directions, and how much the head would gain in one, while it lost in the other. Whatever distance there was between the extremities of the handles of the forceps, when the blades were applied to the sides of the head, we brought them close together; and fixed them in that state by means of a ribband, that the reduction of the head might not vary, while we measured its dimensions anew, in order to compare them with what they were before the experiment. It cannot be objected to us that the heads of all these children might have been reduced still farther.

between the blades of the forceps, than we reduced them; since in each experiment we brought the handles of the instrument together till they touched at the extremities opposite to those same blades; and because the force which we used, sometimes with the hands alone, and sometimes with the ribband which served to fix and tie them together, was such, that those three select pair of forceps which we had provided, were all so bent and deformed, that they could not be used again, without being retouched by the maker. I shall now give the result of our experiments.

1612. The head of the first child, which was three inches and a quarter thick, from one *parietal protuberance* to the other, could not be compressed more than three lines in that direction; and was so far from lengthening from the forehead to the *occiput*, that it lost more than a line in that, though it was at liberty on a table; and three lines more, from the chin to the top of the posterior *fontanelle*. The *parietal* bones crossed each other superiorly a line and an half, and seemed to advance as much over the edges of the *frontis* and *occiput*. This same head, taken from the forehead to the *occiput*, was compressed eight lines; and the handles

handles of the forceps, then separated an inch and three quarters, could not be brought nearer than the distance of six lines, notwithstanding all the force we could use. At that degree of compression the *sagittal suture* opened, the *teguments* burst in the middle of that *suture*, and a portion of the brain escaped.

1613. Another head, of the same thickness, could not be reduced more than two lines; and its length, which was four inches, did not vary. Taken in the latter direction, we could not compress it more than three lines; and to accomplish that, we employed so much force, that the instrument lost four lines of its curves, that is to say, that the extremities of the blades were four lines farther distant, than they were before the experiment.

1614. A third head, of three inches two lines thick, could be reduced but two lines in that direction, and afterwards five in its length. These three heads acquired no increase in length, while they were compressed transversely; nor any additional breadth, whatever reduction was made from the forehead to the *occiput*.

1615. A fourth, of three inches four lines from one *parietal protuberance* to the other, but

softer than the preceding, and having the *sutures* and *fontanelles* more lax, was compressed four lines, with more facility than the second and third had been compressed only two; and its length was increased half a line. Taken between the blades in the latter direction, it was reduced eight lines, but its thickness did not augment.

1616. The fifth head, as soft as the fourth, and having two lines less thickness, being compressed with the same degree of force, also lost four lines, and gained nothing in its length. Taken from the forehead to the *occiput*, it lost half an inch, without increasing its thickness.

1617. The sixth, which was only three inches thick, was reduced four lines and an half, and did not lengthen in any direction. Pressed from the forehead to the *occiput*, it lost eight lines, and its thickness was increased one line. In this degree of reduction, the region of the anterior *fontanelle* became very salient, and an opening of six lines made with a bistory instantly discharged a portion of the brain as large as a hen's egg.

1618. A seventh head, three inches and a quarter thick, could not be compressed more than three lines: and an eighth, of three
inches

inches eight lines, could be reduced only three lines and an half*.

1619. We may conclude from these experiments, 1. that the reduction which the child's head suffers between the blades of the forceps, is different in some respects, according as the bones of the *cranium* have more or less solidity at the time of birth, and as the *sutures*, as well as the *fontanelles*, are more or less firm; 2. that that reduction can, in no case, be so great as accoucheurs have pretended, and that it will very rarely, and not without great difficulty, go beyond four or five lines when the instrument acts on the sides of the head; 3. that we ought never to estimate its extent by the separation of the handles of the instrument at their extremities, and the degree of approximation they are made to undergo before we extract the head, nor by the force we apply to bring them thus together; 4. and lastly, that the diameter, which crosses the direction in which

* It may not perhaps be unimportant to observe that we took the dimensions of all these heads with a pair of calipers, before the experiment; and that we marked the points with ink, on which the branches of them were placed, that we might measure them again between those same points, when in the greatest degree of reduction.

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we compress the head, far from augmenting in the same proportion as the other diminishes, does not usually increase a quarter of a line, and sometimes decreases.

1620. It will be objected, that a head more voluminous than those of the children I have just mentioned, which we took at random from among many others, would suffer a greater reduction than we procured in our experiments, if we employ force enough to bring the handles of the forceps, which are then farther separated, close together. The reduction certainly would be greater, if the head, at the same time that it were larger, were also softer; but by being greater, it would only become so much the more dangerous for the child; since it cannot take place in any circumstance, without diminishing the capacity of the *cranium* nearly in the same degree. If the head be larger than those which served for our experiments, it will generally, at the same time, be more solid, and much less susceptible of compression, unless the child be *hydrocephalic*. A head of four inches two lines from one *parietal protuberance* to the other (there are very few of that size at the time of birth), could not be reduced more than two lines, and the force requisite for that

was so great, that the instrument was bent with it, and the blades were opened an inch at their extremities.

1621. The partisans of the forceps, and perhaps I am the most strenuous one living, may also plead that the bony circle formed by the distorted *pelvis*, through which we endeavour to bring the head engaged between the blades of the instrument, must act on those same blades, like the ring which is put on the handles of some pincers, and which, being advanced on them, closes their jaws, and more firmly fixes what they take hold of; since the forceps, thus disposed, form an ellipsis whose belly is above the said bony circle. The force of this argument cannot be denied; it is very certain that the resistance of the bony circle in question, would produce the same effect on the forceps, as the ring on the handles of the pincers, and would approximate the blades, if the diameter of the head, already compressed, should still surpass that of the *pelvis*, and if a sufficient force be used to bring it through that canal. But as the pressure which the instrument then makes on the parts of the woman, interposed between the back of the blades and the bones of the *pelvis*, is equal to that which
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the child's head itself suffers, what disagreeable consequences may we not expect from it? Whenever the hand cannot conveniently reduce the diameter of the head by means of the forceps, in cases of disproportion, that instrument ceases to be recommendable.

1622. If it seems impossible to determine the degree of absolute compression which the head suffers between the blades of the instrument, from the space left between the extremities of the handles, and the approximation they are made to undergo, because the reduction is subordinate, as I have already stated, to the solidity of the bones of the *cranium*, to the state of the *sutures* and *fontanelles*, to the manner in which the instrument takes hold of the head, to the length of its branches, to their temper, &c. it is not less so to fix the degree beyond which the reduction cannot be carried, without affecting the child's life, which would be much more important to discover: for its effects, relatively to the latter, are also different, according to those same circumstances, and to many others which may arise from the duration of the efforts to which it has been exposed before the application of the instrument. This however appears certain, that a reduction

duction of a given extent, when made naturally, is attended with much fewer bad consequences, than a similar reduction made with the forceps; because it is brought about by infinite gradations, and the latter must be made much quicker, notwithstanding the utmost possible slowness with which the accoucheur can act.

1623. Some practitioners are of opinion that the reduction may be carried much farther than was done in our experiments; and affirm that it may go, not only to six lines, but also to an inch, or an inch and a quarter, and that even at that degree it is not very dangerous to the child. Those practitioners are equally in an error on both these points: if there existed an instrument with which we could possibly reduce the diameter of the head an inch, it ought to be rejected as a murderous instrument. If the reduction of the head must be carried to that degree, to kill the child, we should never have a right to attribute its death to the forceps; for there are none which can reduce it so much. And supposing that there were, they could not be prescribed while the child is living; the intention of the art being
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as much to preserve the child, as to extract it from its mother's womb.

1624. In order to ascertain that the child's head has been reduced to such or such a degree, without killing it, the diameter on which the forceps have been applied should have been measured before it was compressed; and should be measured again after the exit of the head, in the state of reduction in which it was between the blades of the instrument: which no one has done, or ever will do. The graduated scale, which some have recommended to be adapted to the handles of the forceps with that view, could only serve to demonstrate the degree of separation and approximation of them, and not the reduction of the head. Therefore we ought to place no confidence in all that has been published on this point; because we have only general *data*, and those very uncertain.

1625. By comparing the degree of separation at the extremities of the handles of the forceps, in all our experiments, with what I have observed in the course of my practice, whenever I have placed the instrument on the sides of the head; and the degree of force used
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in both cases, to approximate the handles and bring them into contact, I can affirm, that the reduction may go from two to four lines without affecting the child's life : but it is not easy to determine how much farther it can be carried, without causing its death.

1626. These reflections will appear of the utmost importance to those who have declared openly against the use of the forceps, and think it their duty to proscribe them, under the vain pretence of defending the cause of humanity : for, according to their principles, the forceps necessarily adding the thickness of their two blades, which is three lines, to the thickness of the head, we must have a reduction of three lines to compensate that addition. Therefore that reduction, which we cannot look upon as exempt from every kind of inconvenience, seems to them of no use in delivery, since the thickness of the head with that of the instrument, remains the same relatively to the diameter of the *pelvis*. This reasoning would be unanswerable, if we could compress the head but three lines, if the greatest thickness of the blades answered exactly to the parietal protuberances, if those protuberances did not let themselves into the open part of the blades,

so far as to be often level with their external surface, and if the belly of the ellipsis formed by the instrument thus charged with the head, exactly corresponded with the small diameter of the *pelvis*. But things go on in a very different manner from what the detractors of the forceps have stated, especially with respect to some of these points, when they are directed by a skilful hand.

1627. If the forceps, conducted in the best and most methodical manner, are not without inconvenience to the child, when there is a disproportion between its head and the mother's *pelvis*, with much more reason is it so, when that instrument is in the hands of those who, forgetting the axiom, *fat citò si fat benè*, imagine that their honour and their success depend on the celerity with which they operate : for instead of one victim, they often destroy two ; the forceps, directed upon such principles, being not less dangerous to the mother than the child.

1628. The advantages of the forceps are never more evident than in those cases where it is only required to assist or supply the strength of the mother ; as well as when we are led to use them only on account of certain accidents, which

which sometimes complicate the labour, such as an hæmorrhage, &c. But we are not always so fortunate as to have to use them only in such circumstances; and notwithstanding the danger which seems attached to their use in other cases, we are often obliged to have recourse to them, to avoid operations whose success would be still more doubtful.

1629. When the small diameter of the mother's *pelvis* is some lines less than three inches, we must not expect to bring the child alive by means of the forceps; and their use is even dangerous when it is but three inches. Considering that instrument only as a resource for terminating the delivery, and abstracting the fatal effects it may have on the child's life, and the parts of the mother; yet its use ought to be limited: for its application is by no means safe, when the *pelvis* is so defective as not to leave an opening of two inches six or eight lines. For in whatever manner we then apply it, we ought to reckon much less on the reduction it will procure, than on the advantage to be derived from it, as a means of pulling at the child's head, and by that means seconding the expulsive efforts of the mother.

1630. Most authors have not used the forceps till the child's head was descended into the cavity of the *pelvis*, or at least engaged a third, or half its length. *Smellie* seems to have been the first who departed from that rule, and who employed them while the head was still above the superior *strait*. It was particularly with that view that he constructed his second forceps longer than those he used at first, and added a new curve to them, similar to that of *Levret's forceps*. *Smellie* not only knew the possibility of carrying them so far, but also that it was easier to apply them there, than when the head is engaged transversely in the superior *strait*, and its sides strongly wedged between the *pubes* and *sacrum*; since in that case he recommends to push it up entirely above the brim of the *pelvis*, in order to conduct the blades of the instrument on the child's ears more easily.

1631. *Smellie* knew how at the same time to estimate the advantages and inconveniences of taking hold of the head above the *pelvis* with his new forceps. Having observed that the latter were often greater than the former, he resolved not to advise it publicly, and not to demonstrate,

demonstraté, even to his disciples, all the benefit that might be derived from it, for fear, said he, of rendering them too enterprising.

1632. He among us who honours *Roederer* with being the author of the idea of taking hold of a head free above the brim of the *pelvis*, with the curved forceps, doubtless had not read the works of *Smellie*, which are anterior to what that author has transmitted us on the art of midwifery: he might there have seen, not only what I have just related, but moreover, that a Mr. *Puddicombe*, as far back as the year 1743, had successfully delivered a child with the forceps, whose head was still above the superior *strait*. Besides, the fact related by *Roederer* cannot be attributed to him*: we see clearly in the observation itself, that he is only the editor of it.

1633. If *Mr. de Leurie* is the first French accoucheur who has carried the forceps so far, as he declares †, he is not the first who recommended it among us; for he says nothing about it in the edition of his work of 1770; and the

* *Opuscula Medica Gottingæ*, 1763, pag. 206, obs. 1.

† I know not in what year he applied the forceps on the head at the superior *strait* for the first time.

late *M. Solayres* *, who recommended it in his private lectures from the year 1769, put it in practice himself, in presence of several of his pupils, in 1770. I have used the forceps myself at least twenty times since, in similar circumstances : but not always with the same success for the child, nor could it be, because, in some cases, I had not recourse to them till after its death. It seems also that *M. Coutouly*, who likewise attended the lectures of *Solayres*, practised it on the same authority.

1634. The utility of the forceps is not limited to those cases only, in which the crown of the head presents at the orifice of the *uterus*: we employ them also in other circumstances ; as when the child's face engages first, when the head is retained after the exit of the body, as we sometimes see it in labours where the child is extracted by the feet. It is also in the works of *Smellie* that we find the first traces of the use of the forceps in the latter case ; and that author is so much esteemed among us, that I am inclined to think it was from forgetfulness, and not with a design to detract from

* *M. Solayres* professed midwifery at Paris, from 1769 to 1771 inclusively.

his merit, that one of our countrymen has published that *Smellie* only hinted the use of the forceps in that case, and had not described the manner of applying them *. I shall, in the sequel, detail the cases in which we ought to employ the forceps, and the method of using them in each.

A R T I C L E II.

Of the Lever, commonly called Roonhuisen's.

1635. THE lever, which is still sometimes used in the practice of midwifery, has scarcely retained any thing of the form which it received from *Roonhuisen* its original author, and has, as I may say, borrowed a new one from every hand which has employed it.

1636. At first it was only a piece of well tempered steel, about eleven inches long, one broad, and a line and an half thick. It was straight in its middle part, and lightly curved towards each end, about three inches and an half in extent, or thereabouts; the depth of its curves being estimated only at the eighth of

* M. de Leurie.

an inch. Thick plaisters of *diapalma*, or others of that kind, were laid on the back of its middle part, as well as on the end of each curve, and the whole was covered with thin soft leather, neatly sewed ; with a view of moderating the pressure which it must exert in the operation, as well on the child's head as on the parts of the mother which served it for a *fulcrum*. The thickness of the lever, thus covered, was in some places three eighths of an inch.

1637. The lever which the French have substituted to that, pretty much resembles one of the branches of *Palfin's* forceps, except that it is narrower and longer, and its curve is bordered on the inside by a ridge, like that which runs round the blades of *Levret's* forceps. To render it more useful, it ought to be more curved, and half as broad again ; as has already been proposed and practised by some *.

1638. The Hollanders had used the lever

* M. Goubelly, M. P. in 1772.

It is either through malice, or ignorance, that an accoucheur of Bruxelles, who will be mentioned in the sequel, states it, on my authority, to be two inches broad, which is the breadth of his open lever : I must inform him, that in augmenting an instrument of eleven lines, one half, we do not produce one of two inches, but of sixteen or seventeen lines only.

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very much before it was known among us. It was a secret in the family of *Roonhuiſen*, not to be obtained but for money; it was not till after the death of *Bruyn*, one of its co-poſſeſſors, that Meſſrs. *de Vicher* and *Van de Poll*, who had bought it for about five thouſand French livres, made it public, and ſhewed the method of uſing it, notwithstanding the expreſs condition which they had ſubſcribed, not to divulge this famous ſecret.

1639. *Roonhuiſen* and his partiſans only applied it, ſay they, in caſes where the child's head was locked, and eſpecially in that ſort of locked head, in which the forehead was ſo wedged againſt the *ſacrum*, and the *occiput* againſt the *pubes*, that the head could not be pushed forward by the efforts of Nature, though it uſually wanted no more than an inch. This caſe, without doubt, happened more frequently in Holland, and at that time, than among us, and at preſent; ſince a ſingle accoucheur of the city of *Amſterdam* (*de Bruyn*, who died in 1753) ſays he delivered eight hundred women with this inſtrument, in the ſpace of forty-two years*.

* This number of deliveries performed by *de Bruyn*, proves nothing in favour of the lever, but only the abuſe that one

1640. If I am taxed with having altered the doctrine of the first partisans of the lever, and even of him who passes for its author, surely no one will suspect *Dr. Camper* of it, who must be very well versed in the Dutch language, it being his own. This is the way he translates the passage in the Dissertation of *de Vicher* and *Van de Poll*, concerning the cases for which recourse was had to the lever in the time of *de Bruyn*. “The child being placed
 “naturally in the *uterus*, presents the head,” says he; “but it cannot be pushed down by
 “the natural powers, though it commonly
 “does not want more than an inch of it:
 “when it is in these circumstances, and the
 “head remains locked in the *pelvis*, stopping
 “on the edge of the *os pubis*, if we are per-

man made of it. These frequent occasions of using it might serve as arguments against the skill of *Bruyn*, and be considered as so many proofs to be added to those I shall establish hereafter. A practitioner who should affirm that he had met with so many locked heads in the same space of time, even at *Paris* or *London*, cities much larger than *Amsterdam*, even if he were in sole possession of the practice of midwifery, would not deserve any more credit; though *M. Camper* supposes the number must be about two hundred and fifty, *communibus annis*, in the city of *Paris*. See the Dissertation of that physician, on *Roontuijen’s lever*, *Mem. de l’Acad. Royale de Chirurgie*, tome v.

“suaded

“suaded that Nature cannot advance it farther, then this instrument ought to be used.” And in another place: “The head being descended into the *pelvis*, remains with the *occiput* against the superior edge of the *os pubis*; which is probably the sole cause of the stoppage.” See the Dissertation of *M. Camper*, already quoted.

1641. If the position of the head, and the nature of the obstacle which obstructs its exit, in those cases where the authors of the lever used that instrument, are not so clearly stated in the extract from the dissertation of Messrs. *de Vicher* and *Van de Poll*, which is inserted at the end of the translation of *Smellie*, as is done by *Dr. Camper*, and as I have repeated in fewer words, in par. 1639, both of them may however be recognized in the description of the method of operating, as I shall remark in the notes hereafter. Supposing the child's head to be in the cavity of the *pelvis*, as I have just done, the *occiput* against the *pubes*, is considering it in the most favourable point of view for the application of the lever. If I demonstrate that it cannot perform the extraction of it in that case, it will be superabundantly demonstrated that no greater advantage can be derived

derived from it, while the head is still above the superior *strait*: a case infinitely more rare than the former, though that is so much so, that a skilful and honest accoucheur, however much employed he might be, would not venture to affirm that he had met with it once a year.

1642. The authors of the lever, being persuaded that the child's head presented in the manner stated in par. 1639, and that the instrument ought to act only on the *occiput*, introduced it towards the *sacrum* of the mother, and far enough for its curve to embrace the child's forehead; from whence they brought it round on the *occiput* situated behind the *pubes*, passing it on that side of the *pelvis* where they found the least obstruction; trying first one, then the other. *Titfingh*, one of the co-possessors of the lever, still a secret, insinuated it however directly on the back of the head, according to the text of *M. Camper* *; and some others introduced it towards one of the sides of the *pelvis*, between the *ischium* and the temple of the child: but they operated in the same man-

* See *M. Camper*, Dissert. already quoted, and the disavowal of *M. Titfingh*, in a letter addressed to *M. Herbiniaux*, surgeon at *Brussels*, and inserted in the work of the latter, on laborious labours, page III.

ner, and upon the same principles. When the instrument was brought under the *pubes*, they raised the extremity which was without, towards the woman's belly, pulling a little towards them, to force the *occiput* to descend and disengage itself: the middle of the instrument, placed against the inferior edge of the *symphysis* of the *pubes*, then turned round that point, as on its center of motion.

1643. In order to save all those who have read the work of *M. Herbiniaux**, and who are not more learned than he, the trouble of asking with him, from what source I have drawn my knowledge of *Roonhuisen's* method; and to vindicate myself from the injurious imputations which that accoucheur of *Brussels* has thrown out against me, I shall give an extract from what is inserted at the end of the translation of *Smellie*; and I shall besides support it with the authority of *M. Camper*. “The accoucheur,” says the author of the translation of the Dissertation of Messrs. *de Vicher* and *Van de Poll*, “carries the fore-finger of the left hand into

* This work, printed at Brussels in 1782, is entitled, *Traité sur divers Accouchemens Laborieux, & sur les Polypes de la Matrice*.

“ the *vagina* on the side next the *anus*, as far as
 “ the naked *sinciput* of the child, whose face,
 “ in this case, is turned towards the *anus**.
 “ He takes the instrument in his right hand,
 “ slides it along the fore-finger of the left,
 “ against the naked *sinciput* of the child, even
 “ into the orifice of the *uterus*, in case it should
 “ still be so low, which being hardly possible,
 “ very rarely happens, because it is usually
 “ already retracted behind the head†.
 “ When the instrument is thus placed with
 “ its concave part against the *sinciput* of the
 “ child the accoucheur turns his instru-
 “ ment to the right, and to the left, towards
 “ the sides of the head, to find out where there
 “ is most room for it, as it must, in a manner,
 “ encircle the head. When, by feeling
 “ about, the instrument is brought round on
 “ the *occiput*, gently raising the end which is
 “ without, the point must be advanced till the
 “ *occiput* lies in its concavity. The more
 “ firmly that concavity lies against the head,

* Does not this prove that I was founded in giving the head the position stated in par. 1639?

† It is equally demonstrated by this, that the *Rooshuifens* supposed the head at the bottom of the *pelvis*.

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“ the better it adapts itself to it, the quicker
 “ and easier the delivery will be *. To
 “ execute it, the accoucheur raises the outer
 “ end of the instrument slowly, and uniformly,
 “ without leaps, or starts, at the same time
 “ pulling towards him, and pressing down a
 “ little. By this movement, the concave
 “ end, which is applied to the head, must ne-
 “ cessarily be pressed towards the bottom of the
 “ *pelvis*. By continuing thus to raise with-
 “ out, and depress within, a part of the straight
 “ piece between the two curves presses against
 “ the margin, and the inside of the union of
 “ the *ossa pubis*, as on its *fulcrum*. Some-
 “ times, to bring out the head, we are obliged
 “ to raise the external end of the instrument
 “ so high, that it comes against the woman’s
 “ belly.” See the Dissertation itself, at the
 end of the fourth volume of the translation of
Smellie; and *M. Camper*, in the part already
 quoted †.

* No one will doubt, from this statement, that the intention of the partisans of the lever was to apply it on the *occiput*.

† According to this extract, will it appear, as *M. Herbiniaux* asserts, that I have only endeavoured to deceive the public grossly, and that I am a vile impostor? If he is not ashamed of his ignorance, at least, he may blush at his incivility.

1644. If this method, notwithstanding so many authorities, is not the true method of *Roonhuisen*, at least, it has been published as such; and it is on that ground that I shall argue against the use of the lever in the species of locked head, for which it has been particularly recommended. By examining it in every point of view, we shall cease to wonder at the great number of women delivered by *de Bruyn* with the lever; we shall be forced to confess, that the greater part of them would have been delivered if unassisted, and that the rest might have been delivered more methodically, and with less trouble.

1645. If they always operated with the lever in the manner stated above, they never met, in all the women subjected to its application, a single head really locked: in all those women, it was only stopped in the passage; and most frequently its progress was suspended by a very simple cause. The true locked head, of the species described by *Roonhuisen*, or his partisans, does not admit the smallest instrument to be passed between the child's forehead and the *sacrum* of the mother, nor between the *occiput* and the *pubes*; because all those parts

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are

are then in very close contact*. Yet *Roonhuisen* and his partisans say they have insinuated a lever an inch broad, and, at least, four lines thick†, according to the above-mentioned authorities, between those same parts, and have placed it under the *pubes*; some, after having passed it round more than half the internal circumference of the *pelvis*; others, only a quarter, or by introducing it immediately at that part. Were we to allow it only the fourth part of that thickness, we should be equally forced to agree, that the head could not be really locked, when the instrument could penetrate under the *pubes*, or could be brought thither, at whatever other part it was introduced. It is true, that all authors do not give the same idea of a locked head: but whatever opinion the *Roonhuisens* may have had of it, no one will impute to them that which the surgeon of Brussels has ventured to publish, to magnify his own great skill in the art of handling the lever. See the author himself, page 204, and following.

* See the article on the locked head.

† *Roonhuisen's* lever, covered with plaister and leather, was three eighths of an inch thick; that is to say, four lines and an half, according to the translation at the end of *Smellie's* works. See the iv. volume of his work.

1646. The method of *Roonbuisen* is not only defective because the instrument must be placed in the parts where the points of contact are, which constitute the locked head, and which are essential to its existence; but it will appear much more so still, if we compare the direction which it must give to the head, with that which Nature determines it to take, at that period of labour, when it has only the inferior *strait* to clear: for we shall see how far it turns the head away from that salutary course, the only one which is perfectly agreeable to the natural relation of the parts themselves, and which their respective dimensions can permit. The instrument applied on the *occiput*, and directed as ordered, presses the head backward and downward, keeps the child's chin close against the breast, and would force the head to come out in that state, exerting almost all its force towards the *anus* and *perinæum* of the woman, if we were to continue to act in that manner; so that the latter would run the greatest risk of being torn through its whole extent: as the partisans of the lever themselves confess. The child's head follows a very different course when it is delivered by the efforts of Nature alone, and both *Roonbuisen* and his followers appear

appear to me less excusable for disdaining to take her for a guide, than those who have only one simple routine to follow; because she was not entirely unknown to them, as to the latter. I cannot retrace the natural course of the head more seasonably than in this place. In a natural labour, the *occiput* begins to engage under the arch of the *pubes*, from the moment it is placed opposite to it, and soon appears at the *vulva*. The head being forced, as I may say, entirely from behind forward, with respect to the *pelvis*, though the direction of the expulsive powers is absolutely the same as at the beginning of labour*, the chin quits the breast, and recedes so much the farther from it, as the *occiput* engages more in the external parts. The *occiput* then only turns on the inferior edge of the *symphysis* of the *pubes*, as on its axis; while the chin describes a curved line, equal to the

* It is the inclined plane formed by the inferior part of the *sacrum*, the *coccix*, and distended *perinæum*, which determines the head to take a course so contrary to that of the first period of labour; though the expulsive powers are directed in the same manner, and always act according to the axis of the *pelvis*, and of the superior *strait*. Those powers, acting in that line, cannot be directed on the same point of the head, in every part of its progress, on account of the *deplacements* it undergoes.

length of the *sacrum*, the *coccix*, and the distended *perinæum*. See the mechanism of the different species of natural labour.

1647. If the lever, giving the child's head, as I have shewn, a direction so different from this, and so contrary to the intentions of Nature, was sufficient to disengage it from the *pelvis* in all the cases quoted by *de Bruyn* and others, ought we not to conclude from it, not only that the head was then of a moderate size relatively to the breadth of the inferior *strait*, but also that strength supplied the place of knowledge in those who adopted that method? The parts of the mother and the child's head have often given the most convincing proofs of it.

1648. It is also equally demonstrated that the lever has not been sufficient, in all cases, for extracting the head: I shall quote some examples of it hereafter; and perhaps we should be as well founded in maintaining that no one was ever extracted by it, even in those circumstances where the head, as well as the parts of the woman, have shewn evident marks of great efforts having been made with that view. Those who boast of the most success in this way, probably merit nothing but reproaches, instead

instead of all that praise which ignorance has often lavished on them. If the form of the curves of the lever, its relations to the convexity of the head during its progress, its manner of acting, &c. were not sufficient to authorize these presumptions, they would be sufficiently founded from the language of its own partisans. For, in fact, there is none of those practitioners who does not recommend to act with the lever only at the time when Nature endeavours to expel the head; who has not founded his greatest hope on those natural efforts; who does not agree that they then acquire more vehemence; who has not advised to leave the expulsion of the head to them from the time it approaches the *vulva*; to raise the external end as high as possible towards the woman's belly, and leave the instrument, as it were, at rest * But what can the lever do in that relation to the head, and in that state of rest? May we not say, that it would do more harm than good, and that it could only increase the obstacles which already oppose the exit of the head?

* See the extract from the dissertation of Messrs. *de Vischer* and *Van de Poll*; *Smellie*, tome iv; *M. Herbiniaux*, the greatest as well as worst defender of *Roenhuisen's* lever, in our time.

1649. *M. Levret*, before me, endeavoured to demonstrate, that the child's head was not locked in those cases where the method of *Roonhuisen* had succeeded in extracting it, and that the lever was by no means proper in that species of locked head stated by those who first used that instrument: but there is so little consistency, and so much obscurity in his writings respecting this matter, that we can scarcely discern the truth he wishes to unveil in them. This author, whose observations on other parts of the art are inestimable, having spoken of the insufficiency of the lever when the head is locked, grants that it has advantages in other circumstances, in which, says he, its authors never thought of using it; and he agrees, after all, that they must frequently have done without perceiving it, what he himself executed with design. We may judge by the following passage, of what utility the lever would be, if its use were confined to those cases only, stated by *M. Levret*.

1650. There sometimes happen, says that celebrated author, such considerable changes in the mechanical progress of labour, that the *sagittal future* meeting with the spine of one or other of the *ossa ischia*, it may sink into it. If,
adds

adds he, it sink into it, which it can hardly fail to do, the child's head will from that time be fixed obliquely in the cavity of the *pelvis*, which it will entirely fill, because the chin has quitted the breast. If we cannot discover this case early, continues he, and hinder the spine of the *os ischium* from engaging itself in the *sagittal suture*, the finger not being able to reach the obstacle, or conquer it, we may use *Roombuisen's* lever, which will succeed very well, or one of the blades of the forceps, which he had often used in that way before he was acquainted with the lever, and continued to do since in all those cases, which, according to *M. Levret*, are very common, but very badly understood*. They are indeed very badly understood, and must necessarily be so, if the sinking of the *ischiatric* spine into the *sagittal suture* must be admitted; for I maintain that no one can produce a single example of it, because it is impossible it should happen in the manner stated by that learned accoucheur, even in any case of distorted *pelvis*. But let us not interpret rigorously, expressions which slipped from *M. Levret*; let us consider in this sort of

* Suite des Observations sur la Cause de plusieurs Accouchemens Laborieux, edit. quat. pag. 292 & suiv.

cases, only that which he describes so clearly in one of his observations*, and that which I have stated in par. 1277 and following, and we shall be forced to agree with that author, that it is one of the cases in which the lever might be usefully employed, though it is very rarely indispensable.

1651. *M. Camper*, more complaisant than I, does not doubt that the child's head was locked, in all the labours terminated by *de Bruyn*, with *Roonhuysen's* lever; he only labours to prove that that accoucheur, and those who were then in possession of the instrument, did not often apply it on the *occiput* conformably to their intention, but almost always on the angle of the lower jaw, or on one of the sides of the head: as he was convinced by his own experience, and as the red marks which he says he sometimes observed on those parts, in cases where others had made use of the instrument, seemed to him to denote. Those red marks do not at all prove what *M. Camper* attempts to establish on this subject, at most, they can only make us presume that the child's head was situated transversely in those particular cases, as we al-

* *M. Levret*, le même ouvrage, page 4, obs. 2.

most always find it when the head stops in the middle of the *pelvis*; and that the partisans of the lever have then acted on one of its sides, only because they knew no other method of using the instrument, and because they persuaded themselves that it ought always to be placed under the *pubes*, where, according to them, the *occiput* is almost always found: for they did not entirely forget these transverse positions. It is true, they were of opinion that they are rarely met with, and that they could seldom be distinguished before they operated: therefore they recommended to act with precaution, and carefully moderate the pressure made by the end of the lever on the head, when there is any reason to suspect the *occiput* to be on one side, lest they should hurt the ear, the cheek, or the eye, &c.

1652. This random assertion of *M. Camper* seems to be no better founded than that which he deduces from the impossibility of carrying the lever on the *occiput*, strongly wedged against the *pubes* when the head is locked. If it could penetrate there so far, that its curve should exactly embrace the convexity of that region, I do not see how it could turn away from it when an effort was made to raise its external

end, and it would be difficult to conceive how it could quit that place. *M. Camper*, by granting that *de Bruyn* had disengaged eight hundred locked heads with that instrument, reserved to himself the liberty of deducing a consequence from it, favourable to his own opinion: which was, that *de Bruyn*, not being then able to act on the *occiput*, must have acted on some other part of the head; and on one of its sides, at more or less distance from the chin. Many partisans of the lever, he says, were convinced of all that he advances on this subject, by seeing him operate on a dead body, at the time when he was professor at *Amsterdam*: he reckons *M. Titsingh* among those who confessed to him that the instrument ought to be placed as he demonstrated it. I have already mentioned the disavowal of the latter, and I shall say a word or two concerning his method, in the sequel.

1653. *M. Camper*, though an enemy to the method of *Roonhuijsen*, does not declare himself less openly in favour of the lever, but he would have it used in another manner. "Introduce," says he, "all the cavity of the instrument, " either along the forehead, the temple, or the " *occiput*, into the *uterus* with the right hand, " till

“ till you find the cavity answers to the con-
 “ vexity of the head, it will then pass the ear,
 “ and place itself at the side of the neck, and
 “ the end more or less towards the child’s
 “ chin, according to the size of the head ; then
 “ raise the other end, and apply the left hand
 “ towards the middle of the spatula, thus de-
 “ pressing the head, and pulling it towards
 “ you at the same time it will be delivered
 “ in an instant.”

1654. We shall be struck with *M. Camper’s* opposition to himself, if we compare what he prescribes here, with what he combats in speaking of the method of those who employed the lever before him ; since, after having denied the possibility of placing it on the *occiput*, which is, says he, as if it were glued to the *pubes*, when the head is locked, he recommends introducing it at the same part, or along the forehead, which is not less strongly pressed against the *sacrum*. This first part of the method of *M. Camper* is refuted by the very doctrine of its author concerning the locked head ; a doctrine which I hold to be true, and founded on accurate observation.

1655. Supposing that the child’s head was not really locked in those cases where *M. Cam-*
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per made use of the lever, as I have demonstrated, even according to him, that it could not be in those related by *de Bruyn*, this new method of directing it would not appear less defective, nor could we better perceive the possibility of it. Whatever might be the size of the head relatively to the capacity of the *pelvis*, how can we persuade ourselves that the end of the lever introduced flat under the *pubes*, where the *occiput* is, could pass to the side of the neck, and place itself towards the chin? How could we conduct it to that same part by introducing it along the temple, or even along the forehead, which then occupies the bottom of the curve of the *sacrum*? For it to go beyond the angle of the lower jaw towards the chin, and for the curve of the spatula to embrace exactly the convexity of the head, the instrument must be placed free at one of the sides of the *pelvis*, and a little obliquely from below upward, and from behind forward; one of its edges must press against the top of the arch of the *pubes*, which serves it as a *fulcrum* during the extraction of the head; while only the extremity of the other edge acts on the base of the jaw, near the part stated. It is not thus that *M. Camper* represents it; it is the breadth

breadth of the body of the instrument, and not its edge, which he makes to rest against the inferior margin of the *symphysis* of the *pubes*. Now in that situation the concavity of the spatula can embrace no part of the head but what is behind the *symphysis*, and its extremity cannot be near the chin, except it be one of the temporal regions: there can be no person who does not assent to these truths, so obvious are they to the meanest capacity.

1656. If the method of *M. Camper* were practicable, it would not be preferable to that of *Roonhuysen*, except in one single point: which is the direction which the instrument would give to the head in its passage through the inferior *strait*, and the *sinus* of the external parts. Acting with its extremity placed on the jaw near the chin, and drawing it in the circle which it ought to describe*, it would favour the

* The action of the lever is such, that each of its extremities describes an arch, in opposite directions. Suppose the lever placed under the *symphysis* of the *pubes*, the inferior edge of which must serve it for a *fulcrum*, and put it in action as recommended by its partisans; by raising the extremity which is without towards the woman's belly, you make it describe an arch, whose convexity is towards the *anus*, and the concavity

the efforts of Nature, which tend to give it that direction. See par. 683 and 1646. But that the efforts of art, and those of Nature, thus acting in concert, may be salutary, and perform the delivery of the head, it is absolutely necessary that the head should be sufficiently advanced in the *pelvis*, for the *occiput* to answer entirely to the arch of the *pubes*, that it may engage under it, rising without towards the *mons veneris*, while the chin describes, before the *sacrum*, the *parabola* formerly stated. Without this condition, which cannot exist in the species of locked head taken for an example, according to all the partisans of the lever, the head cannot advance in that direction, which is the only natural one. To act with the end of the lever near the chin, and endeavour to bring it down, before the *occiput* is below the *pubes*, would be acting contrary to the principles of the art; it would be misunderstanding the mechanism of the locked head, the mode of its deviation from its usual course,

vity towards the *pubes*, while the hidden extremity will describe another, whose cavity will be downwards, and the convexity towards the fore part of the *sacrum*: it would be according to the latter, that the end of the lever applied to the chin would bring it along.

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to become locked, and not making a better application of the theory of levers.

1657. All the partisans of the lever, before *M. Camper*, looked on the *occiput* as the place on which it ought to be applied, that which was fittest to give it an advantageous hold, on which we might act with the greatest force without hurting the child, and on which we ought to direct the powers of art to second those of Nature: which accords sufficiently with our knowledge of the structure of the *cra-nium*, of the mechanism of labour, and of the species of locking for which that instrument has been proposed. As those practitioners were of opinion that the *occiput* generally answered to the *pubes*, so it was under that that they insinuated the lever, or brought it thither, after having made it penetrate at some other part of the *pelvis*. *M. Camper*, to whose reputation the title of a skilful accoucheur can add nothing, after having demonstrated the impossibility of placing it on the *occiput* in the species of locked head known to the *Roonhuisens*, endeavours to prove also, that if it were brought thither it could not remain there, and that its extremity, passing by the side of the neck, would place itself near the chin. The same

zeal which led me to discuss the doctrine of that physician concerning this point of the science of midwifery, obliges me to examine that of *M. Titsingh* and of *M. Herbiniaux*, with which it has some affinity. If it be not on the lower jaw, near the chin, that those accoucheurs direct the extremity of the spatula, as *M. Camper* asserts with respect to *M. Titsingh*, at least, it is on the *mastoid apophysis*, or in its vicinity, and therefore not far from it, since the angle of the jaw is very near that *apophysis*. Supposing that these two methods are not similar, the disavowal * which *M. Titsingh* has made of that attributed to him by *M. Camper*, would not merit any consideration, except so far as it might contribute to the progress of the art; and as the method which he substitutes should be more agreeable to the principles of the science, and to the knowledge which that practitioner seems to have of the mechanism of labour.

1658. *M. Titsingh* begins by laying it down for certain that the child's head always descends naturally a little across in the *pelvis*, one of its temples along and against the *sacrum*,

* See the letter of *M. Titsingh*, inserted in the work of *M. Herbiniaux*.

and the other under the body of the *os pubis*; that, in advancing thus forwarder and lower in the cavity formed by the *coccix*, it gently rectifies itself, the face turning backward towards the *rectum*, and the *occiput* forward under the *pubes*; and that, lastly, it presents at the *vulva* that part which is commonly called the crown. It is equally certain, says he, that the face is placed obliquely backward, when the head remains locked; and it is in that position he supposes it to be, for the exemplification of his manner of using the lever. I shall make no objection to the opinion of *M. Titfingb* on this latter point; coinciding entirely with him concerning the former, I allow the child's head may stop at any given height, in the position he states. *M. Titfingb* too well describes the course the head takes in a common labour, for us not to expect that he would unite all his efforts to make it take that course, in the case in question, and favour even the smallest movements which compose it, for in that alone the art consists. The part where *M. Titfingb* places his lever would be that where it ought to be directed when the head is fixed transversely in the superior *strait*, if it could penetrate thither, if the greatest thickness

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ness of the head had already cleared the narrowest part of the *strait*, and if it were only required to make it descend completely into the cavity of the *pelvis*: for it would then act perpendicularly to the obstacle which retains it, and so as to surmount it with the least possible force. But let it be remembered, that in all I have hitherto said concerning the use of the lever, the question is much less to make the child's head execute this preparatory step, than to extract it entirely, then we shall see how little the procedure of *M. Titsingh* accords with his knowledge of the mechanism of labour; and every one will think he has a right to ask how, with the lever placed under the *pubes* of the woman, and on the *mastoid apophysis* of the child, he shall be able to reduce the head to that natural course, so accurately observed and so well described by that practitioner himself. *M. Titsingh* seems to have left to *M. Herbiniaux* the honour of informing us*.

1659. If the personalities and the abuse of all kinds which the latter every where substitutes to principles, argument, demonstration, and proof, could supply the place of them, he

* See his letter already quoted.

Without doubt would have far surpassed *M. Tissot*, and would have obliged all those whom he regards as detractors from the lever, to confess that it is a masterpiece of invention; since it may be substituted to the forceps in all cases, and procure great advantages in others, where they are not applicable. Notwithstanding the contempt which it is impossible to withhold on reading the work of *M. Herbiniaux*, I think myself obliged to take notice of it, lest my silence should be construed, by the author himself, as a confession of the excellence of his doctrine. If the discussion which I shall enter into on some points, does not undeceive him, and discover to him his ignorance of every thing concerning the art he disgraces, and which he nevertheless exercises with some degree of vogue, it may perhaps render him more circumspect for the future, in pronouncing judgment on authors who seem to merit some regard, at least for the rectitude of their sentiments; and it may be a check on young practitioners who might take him for a guide *.

1660. I

* *M. Herbiniaux* would be much more worthy of contempt, if he himself had compiled his work: his ignorance of

1660. I have already observed that *de Bruyn*, and many others, allowed that it was impossible for the end of the lever, placed under the *pubes*, not to be carried, in some cases which they thought extremely rare, on one of the sides of the head, in the environs of the ear; and with what gentleness and care they used it, when they had reason to suspect that circumstance. *M. Herbiniaux*, far from seeking to avoid it, like those practitioners, exerts all his industry to meet with it: it is on the *maстоide apophysis*, very near to the ear, that he directs his lever; he looks on that *apophysis* as the only place where he can find an advantageous hold; and a contusion more or less violent has often demonstrated to him, after the exit of the head, that he had not sought it in vain. He says, I should not have decried this instrument, if I had directed it like him, and especially if I had been acquainted with the improvements which

our language can alone excuse his having put his name at the head of it. I am even persuaded that some one, jealous of his little reputation, and more skilful than he in the language, has lent him his pen, for the purpose of robbing him of the esteem of his fellow-citizens. If any should think they have a right to reproach me for treating him with so little ceremony, I recommend to them to read his work, and judge it with more moderation if they can.

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he has made in it; for he allows that *Roonhuisen's* lever was defective, that it was ill adapted to most cases, and that its author did not conduct it in the most advantageous manner. This opinion, which ought to have rendered *M. Herbiniaux* more sparing of the outrageous epithets which he lavishes on those who wrote against that instrument before the publication of his work, is only another *trait* of his ignorance or malice; since those authors only combated the lever and method of *Roonhuisen*. Besides, *M. Herbiniaux* has scarcely made any alteration in that lever; for I reckon as nothing that ring which he has placed at the bottom of each curve, and which he intends to receive a ribband, whose utility amounts to *zero* in the eyes of a man of skill. It is however that ribband, and that ring, the manner of using which may be seen in the author, which transforms the lever in the hands of the surgeon of *Brussels* into a new instrument, which makes it, when necessary, raise the head instead of depressing it, or, at the will of the operator, unites those two powers together, and which makes it applicable to such a number of cases in which I had judged it

useless *. Therefore there is no more question of the lever and method of *Roonbuisen*, in what I shall say farther on the subject, but of the lever and the method of *M. Herbiniaux* : perhaps it would not be improper to speak also of the elbow chair and couch of the same author, since he seems to accord them a small share in his great success.

1661. I shall not follow *M. Herbiniaux* in the obscure route which he has taken, lest I mislead the reader also : I shall only take notice of his first steps ; to demonstrate them will sufficiently shew the rest of his road. Besides, it is not my intention to reject the lever entirely, but to display its insufficiency in many cases for which it has been particularly recom-

* I have procured this instrument from *M. Herbiniaux* himself, by means of a surgeon of Gand. I am not ignorant that that which he uses in his daily practice is a little different ; that it is of beaten silver, and composed of several pieces ; that the ends may be mounted on a cylindrical handle of the same metal, which also is not without utility ; since, in case of need, it constitutes the body of a syringe, very proper, says this surgeon, to baptize the child with, before the operation. As the success of its application does not depend on the richness of the metal, I shall make no preference of one over the other.

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mended ; for I shall in the sequel mention some where it may be useful. I shall more particularly examine that which *M. Herbiniaux* has chosen to illustrate his first operation, or the general mode of operating with his lever ; as well because it appears to me to be that of the *Roonhuijsens*, as because he endeavours to reduce all other cases to that. I confess, however, that the position of the head, which I shall state here as the same for which the *Roonhuijsens* particularly recommended the lever, is not so clearly expressed by *M. Herbiniaux* as by them ; but that is too common a fault in his work, to make it worth an attempt to explain it, and it is by the help of similar obscurities that he every where slips through our fingers. This is the title of the section where that position is stated : “ The manual, or general mode of
“ operating with my lever in the position of
“ the head in which the face answers to one
“ of the sides of the *os. sacrum*, and the *occiput*
“ to the arch of the *pubes*.” If *M. Herbiniaux*, by the words arch of the *pubes*, understood that large notch which is under the *symphysis*, as all accoucheurs understand it, I think he would agree, that a head placed in that manner must be very much deformed, or the head which

should see it so must be very badly organized : but it seems that this famous accoucheur of Brussels expresses, by those words, the arch formed within the *pelvis* by the bodies of the two *ossa pubis*.

1662. When it is very certain that the head is turned in such a manner that the face is backward (I shall use his own expressions every where) *, he passes two fingers of the left hand into the *vagina*, under the arch of the *pubes*, and the edge of the orifice of the *uterus*, if it be still low enough, to serve for a conductor to the lever. He introduces his spatula with the small curve †, well oiled, from below upward, and in an oblique direction from behind forward, advancing it on the child's head along the *symphysis* of the *pubes*, or a little on one side, till its extremity arrives near the base of the *occiput*. He then raises the handle of his lever, or brings its inferior extremity from behind forward, moving it up and down with its back resting against the *pubes*, by little jerks ; turn-

* See the author, page 389, § 420, 421, 422, 423, 424.

† The stated condition, and the preference which *M. Herbiniaux* gives to his spatula with the small curve, prove that he supposes the head low in the *pelvis* : for he uses that spatula only in those cases. See § 120 of his work.

ing the end of the spatula obliquely to the right or the left towards the side where the *mastoide apophysis* is *, in order to find a point of resistance near the base of that *apophysis* †. When he thinks he is arrived at the point he was in search of, he makes a trial of attraction on the head ‡, holding the handle up with one hand, that the instrument may play on its *fulcrum*, while with the other hand he pulls the cord towards the *anus* of the woman ||. By means

* The *Roonhuijens* also went feeling about for the part where they could find most room; the operator, who has well distinguished the position of the head, does not feel about; he knows his object, and goes directly to it: this feeling about proves that he knows not what he does.

† There is no student in anatomy who does not know that the *mastoide apophysis* does not exist in the *fœtus*, at least that it does not project far enough for the end of the instrument to rest against it.

‡ This trial of attraction also is a proof of not knowing what he is about.

|| The *fulcrum* of the instrument is the inferior edge of the *symphysis* of the *pubes*; and the cord is that which I have mentioned in par. 1660. A little cord wound round one of the extremities of *Roonhuijens's* lever, and which we see engraved with it, seems to have given the first idea of it. The use made of it by *M. Herbiniaux*, is that which *M. Levret*, whose pupil he ought to be proud of having been, presumed the *Roonhuijens* made of it.

of this trial of attraction, *M. Herbiniaux* finds a resistance which continues, he says, during the first pain, and every time he operates in the following pains, if the extremity of the spatula has passed the *mastoide apophysis*. When he cannot find that resistance, he carries his instrument to the part where he finds most solidity, and tries till it will hold firmly. This accoucheur observes that the little jerks which he makes with the handle of the lever, and the attraction which he exerts on the blade by means of the cord, are sufficient to direct the child's face on one side, and towards that to which it is already inclined *, unless the head be wedged tight on all sides between the bones of the *pelvis*; which he thinks can never happen: so that after these first manœuvres, continues he, “ the *mastoide apophysis*, which we
 “ have taken hold of, is under the *symphysis* of
 “ the *pubes*, and is no longer difficult to be
 “ held with the extremity of the blade; and
 “ the lever, which now takes a right line with

* This is very wrong, and is alone enough to prove that *M. Herbiniaux* acts without method; for there is no method in doing ill: nothing can demonstrate a greater ignorance of the mechanism of labour.

“ the body of the woman, acquires a greater
 “ force from it, for the extraction of the
 “ head *.”

1663. Before we proceed to the manner in which *M. Herbiniaux* sets about extracting the head, I shall dwell a moment on this first part of his operation, though it does not seem to be of great importance, since it only regards the application of the instrument. I shall not object to him the impossibility of introducing his lever under the *pubes*, in this case, as I have done in discussing the method of *Roonhuisen*: he has prevented my objections on that point, by declaring himself of a contrary opinion to that of all accoucheurs concerning the true locked head, and by forming one which will agree with his mode of proceeding. According to him, the words locked and engaged are synonymous †: he looks upon all heads that have descended into the *pelvis* as locked, whatever degree of compression they suffer, or mobility they enjoy. The head which is completely locked, is that which has completely

* We shall see by and by that this increase of force is superfluous, because we exert none with the lever for the extraction of the head, properly speaking.

† See the author, page 207, and following.

cleared the superior *strait*; the head which is only partially locked, that which has only descended in part, &c. With such principles there can be no obstacles to the introduction of the lever, and the use of that instrument may be carried very far. If the words engaged and locked are synonymous, accoucheurs have certainly not used them in the same sense, but to signify two different states, though in both the head is certainly engaged. Though the head, which is really locked, is engaged in the *pelvis*, because it cannot be locked without it, yet that which is engaged is not always locked. All those which clear the canal of the *pelvis*, however quick or slow their course may be, engage in it; but those which are locked in it cannot clear it, till art come to the assistance of Nature. The number of the latter is very small, and of the former so great, that no proportion can be established between them. A locked head is immovable; and fixed by two points of its surface at least, diametrically opposite, it cannot turn on its axis. See par. 1708. That which *M. Herbiniaux* proposes to extract with his lever, though far engaged, is movable, and turns easily in the *pelvis*: it is from that very mobility that the most essential fault in
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that part of the operation which I have already described arises; since without that the child's face could not be turned to one side, and the *mastoide apophysis* brought under the *pubes*, by means of those little jerks and feeling about, which seem necessary to place the lever properly. A man must be ignorant of the first elements of midwifery, even more so than the youngest pupils, to expect an advantage from this change in the direction of the head, when it has only the inferior *strait* to clear; or be very little afraid of contradicting himself to declare it so publicly. *M. Herbiniaux* will agree presently, that this transverse position which he makes the head take, by the action of his lever, is not proper for passing the inferior *strait* *, though in another place he endeavours to insinuate that it is the best †. If facts could have more effect than argument on a man blinded by prejudice, I could produce many to demonstrate to this surgeon of *Brussels*, that, in many cases, the greatest obstacle to the exit of the head arises merely from this transverse position, and that this obstacle may exist in the

* See the author, § 308, 309, 428.

† See *M. Herbiniaux*, page 378, at the end of § 405.

best formed *pelvis*: I should only be embarrassed in the choice of those facts, which I could find even in the work of *M. Herbiniaux* himself. We shall presently see Nature struggling with him, displaying all her powers to restore the head to its primitive position, and carrying the *occiput* under the *pubes*, in spite of all the resistance he can make, by doubling the power of his lever, which he then makes act in opposite directions at the same time. It is from his manner of proceeding to the extraction of the head that all these lights are to be collected.

1664. We must wait, says he, in order to extract the head, till the action of the lever be seconded by the expulsive contractions of the *uterus*; therefore he waits till a little pain comes; and as soon as he has notice of it, he begins to shake his lever* on its *fulcrum*†, continuing it as long as the pain lasts. To finish the extraction, he raises the handle of the lever by little jerks, and at the same time redoubles the attracting motion by means of

* It is then placed on the *masloide apophysis*, which answers to the *symphysis* of the *pubes*.

† That *fulcrum* is the inferior edge of the *symphysis* of the *pubes*.

the cord which he holds in the other hand; and by that means, continues he, he draws the lever downward, as well as the head. The woman's pains, which were not expulsive before, become so much so, as soon as he begins to operate in that manner, that, he adds, the force of the *uterus* becomes double or triple what it was, which induces him to leave the expulsion of the head to it, when it is entirely in the *pelvis*, unless unforeseen causes oblige him to extract it precipitately *.

1665. I shall not abuse the reader's patience, by demonstrating here that *M. Herbiniaux* has done nothing yet, or almost nothing, towards the extraction of the head, and that he will do nothing more, except unforeseen circumstances oblige him to go on; since it is his custom to commit the expulsion of it to the efforts of Nature, for fear of tearing the *fourchette*, by making the head and the instrument pass the *vulva* together. If he leaves the expulsion to the efforts of Nature, as soon as the head is entirely descended into the cavity of the *pelvis*, he does not extract it; if he leaves off acting

* This paragraph contains nothing, but, as I may say, the very expressions of the author. See his work, page 392, § 425, 426, and 427.

with the lever, when the head is arrived at that point, what has he done with his instrument? Did not the head occupy the cavity of the *pelvis* before he applied it? If *M. Herbiniaux* cannot deny that the head was engaged in it*, to what purpose all those little jerks, those little up and down motions with the lever on its *fulcrum*? Why redouble the motion of attraction, by means of the cord attached to the blade, and in so simple a case unite the power of a lever pressing downward and of another pressing forward at the same time? Supposing that the head were a little less advanced than I have allowed it to *M. Herbiniaux*, and that it were not yet completely at the bottom of the *pelvis*, it would not be less demonstrated that he had done nothing towards its extraction. He agrees, 1. that it rolls easily under the blade of the lever, and that the little shakes and jerks, which he makes in searching for the *mastoide apophysis*, are usually sufficient to turn the face on one side; and that itself is a very great defect in his method: 2. that the action of the lever doubles, and even trebles, the expulsive forces of the

* See the notes on par. 1662.

uterus, &c. But how is it possible to conceive that a head so little wedged in the superior *strait* should stop there, whatever might be the state of the forces which tend to push it forward, since it has to pass from a narrow place into a larger? If those forces, augmented by the presence of the lever, suffice for the expulsion of the head, after this first step which carries it to the bottom of the *pelvis*, why would they not make it take that step also? I am fully persuaded that the lever has very little share in it, and that in his hands it is nothing more than a means of irritating the *uterus*, and exciting it to contract with more energy; as we sometimes irritate it with the end of the finger conveyed under the edge of the orifice, and the hand placed on the belly. The surgeon of *Brussels* agrees that this augmentation of the expulsive forces follows close on the application of his lever, and that he commits the expulsion of the head to them, except unforeseen circumstances make him change his plan. When those circumstances occur, what does he do?

1666. If they oblige him to extract the head precipitately, we may, says he, keep to the old method, taking care however to avoid
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tearing the *fourchette*. Though that old method is already known, and has been discussed, I shall go over it again, since *M. Herbiniaux*, who has taxed me with imposture concerning every thing which relates to it, thinks proper to approve it. According to him, we must with one hand draw the lever towards us at the top of the *vulva*, as much as possible, without letting it slip its hold : which is done by pressing the palm of the other hand against the *anus* and *perinæum*, in order to raise the *occiput* towards the notch formed by the branches of the *ossa pubis*. Then the handle of the lever rises above the *mons veneris*, towards the *abdomen*, to a surprising height, before the chin passes the *fourchette*. . . .

1667. I have demonstrated, in examining this old method, which is that of the *Roonhuisens*, that the head was expelled, and not brought out by the lever; and I should be much better founded in objecting it to *M. Herbiniaux*, to him who informs us that the forces of the *uterus*, little expulsive before the application of his instrument, become so much so, that they double, and even treble : but let us be silent on this point, to avoid tautology. We have seen that *M. Herbiniaux* reckons among the
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the greatest advantages of his method, the facility which he finds in placing the face on one side, and bringing the *mastoide apophysis* under the *symphysis* of the *pubes*, by introducing his lever; and that it ought to be placed on that *apophysis*. Although he has published that this transverse position of the head does not accommodate itself so badly to the inferior *strait*, since the great diameter of the *cranium* then answers to the greatest diameter of that *strait*, and that he could not see why we should persist in changing it, and bringing the *occiput* under the *pubes*, yet he acts very differently; and the reproach which he has cast on me of endangering the child's life by twisting its neck, every time I bring the *occiput* to that point with the forceps*, could not restrain him, and hinder him from imitating me. If he does not direct the occipital extremity of the head under the notch formed by the branches of the *ossa pubis*, by means of his lever, as I do with the forceps, and much oftener with the finger alone, at least, he does not with all his might oppose the pivot-like motion by which it comes to that good position.

* See M. Herbiniaux, pag. 378, à la fin du § 405.

He does not oppose it with all his might; I do not charge him with that intention, which would be as blameable as his method; but he renders that motion more difficult, by acting with the end of the instrument on the region of the *mastoide apophysis*, which he has brought behind the very *symphysis* of the *pubes*: for the lever placed and put in action, as that surgeon recommends, directly tends to keep the head in that transverse situation. If the *occiput* should still come upward, notwithstanding the obstruction which that instrument must inevitably give it, admire the powers of Nature, *M. Herbiniaux*; study her more, and see how she displays all her forces to overcome the natural difficulties of the passage, and those which you add to them with your lever. Since her view is to carry the *occiput* under the notch formed by the *ossa pubis*, do not prevent her any more, as you do by applying that instrument, nor any longer hinder the *occiput* from taking that position, at the time when you imagine yourself going to extract the head.

1668. It is not only in that that *M. Herbiniaux* is at variance with himself, with Nature, and with all good authors; he is so likewise in many other respects; and besides all that

that I have said, we might demonstrate to him that he cannot perform the extraction of the head by the method which he adopts. In the old method, so many times disputed, and rejected by *M. Herbiniaux* himself, the lever placed under the *pubes* was applied on the *occiput* of the child, as it must necessarily be when unforeseen circumstances oblige him to finish the delivery precipitately; since he says positively that the *occiput* then engages in the notch formed by the branches of the *ossa pubis*, and that he raises his lever to a surprising height towards the woman's belly. How can we grant to the surgeon of *Brussels* what he refuses to the surgeon of *Amsterdam*? to the instrument of *M. Herbiniaux*, which does not essentially differ from that of *Roonhuijsen*, what the latter cannot perform? *M. Camper* was in the right, says he, in publishing, that to use it with success it ought not to be applied on the *occiput*, as was taught by *Messrs. de Vischer* and *Van de Poll*; and he has constantly observed, that it slips and loses its hold with the smallest attracting motion, if it be not applied under the *mastoid apophysis*, or else between that *apophysis* and the occipital *protuberance* *. Let *M. Herbiniaux* in-

* See *M. Herbiniaux*, pag. 85, and following.

form us how he acts on that point, at the time the head traverses the inferior *strait*, when it engages under the arch of the *pubes*; or let him confess that all the efforts he has made till then, and particularly those which he exerts afterwards, cannot be looked upon as salutary, except in the eyes of the ignorant. His second and third operations, which he only gives as so many additions to that which I have just analysed, far from dispelling the doubts I have started concerning the knowledge of this author, only give them an additional force: those who will be at the pains of reading his work attentively, will perhaps think that I treat him with too much indulgence.

1669. *M. Herbiniaux* * classes among the preternatural labours, that where the child's face is turned towards the arch of the *pubes*, and the *occiput* towards one of the lateral parts of the *os sacrum*; because the head is then more exposed, says he, to be stopped by its base in the superior *strait*: which does not appear very clearly to any body else. To remedy this accident, he observes to which side of the *pelvis* the face is already inclined, in order to turn it a little more still to the same side, and bring

* Page 399.

the *mastoide apophysis* towards the arch of the *pubes*. To effect this displacement, he makes use of an open lever, which is longer and broader than his usual instrument; and he carries it on the child's temple, from whence he advances it towards the posterior and lateral parts of the lower jaw, scooping the head round. The face being placed on one side, he uses his spatula, and applies it on the *mastoide apophysis* to extract the head as in the preceding case; that is to say, to be again a witness that, notwithstanding his efforts, Nature will find resources in herself to expel it: for I cannot repeat too often, for the instruction of *M. Herbiniaux*, for the safety of the women and children entrusted to his care, and, lastly, for the honour of the art, that the lever placed under the *pubes* and on the *mastoide apophysis*, cannot perform the extraction of the head, as it cannot any way contribute to bring the *occiput* opposite the notch which we call the arch of the *pubes*, where it presents in this last period of labour; since its action only tends to keep it in the transverse position which by the help of that instrument we have already given it, whether we press downward, or draw it towards us, or both together.

1670. The third operation, considered only with respect to what it has in it particular, is much more simple than the first, to which it is only an addition, and even than the second, because the position in which the head then is, is the most favourable for the application of the lever, according to the principles of *M. Herbiniaux* : the face answering to one of the sides of the *pelvis*, and the *maстоide apophysis* on which the instrument must be placed, being situated behind the *symphysis* of the *pubes* *. This position has so much affinity with that which is the subject of the first operation, continues this surgeon, that he should not particularly describe the method of operating in it, if they were not in the habit in France of looking upon this position as much worse than any other, when it is necessary to make use of instruments : but he gives it to shew that the use of his lever is as easy, and its success as certain, as that of the forceps is dangerous and uncertain. We must appeal to experience to decide it : if we listen only to that, we shall not be able to avoid being of a very different sentiment from what I have formerly expressed for the author of the book which I have been

* Page 402.

obliged to examine. If the case in question be not the most simple of all those which admit the application of the forceps, I can affirm that it has never given me the least embarrassment or uneasiness, when the woman's *pelvis* and the child's head were in that proportion of dimensions, which we cannot avoid admitting in all those cases in which *M. Herbiniaux* affirms he had used the lever with success : more than four hundred persons could give satisfactory evidence of this. If this caution be not sufficient for the Brussels surgeon, I flatter myself, it will be of some weight in the eyes of those who might have been intimidated by his vain declamations against my principles. I hope to be able to prove to him, that the forceps have performed, in similar cases, what the lever never could have done.

1671. I have superabundantly demonstrated that the lever placed under the *symphysis* of the *pubes*, and applied on the *mastoide apophysis*, which naturally answers to it in this case, could not but keep the head in its transverse situation with respect to the inferior *strait*; that that position was so little favourable to the exit of the child, that nothing could oppose it more strongly on many occasions, and

that frequently all the difficulties of the labour depended on that entirely ; that it was so little conformable to the relation of the parts, and so contrary to the intention of Nature, that changing it had a thousand times sufficed to enable the woman to deliver herself with as much facility as promptitude ; and that we have seen this displacement take place under the hand of *M. Herbiniaux*, armed with the lever, notwithstanding the efforts which only tended to oppose it. Why should we seek for other proofs, after so many excellent lessons, some of them given by Nature herself? Though less culpable in the case which is the subject of his third operation, than in the preceding, he does not appear more skilful. In that, which is the subject of his first operation, the child's head, already descended into the *pelvis* and placed favourably, after having changed its direction under the lever, receding from that which is convenient for its exit, is restored to that good position, notwithstanding the resistance he gives to it. In the present case, situated naturally across, if he has contributed nothing to this unfavourable position, he does nothing which may not continue it ; but Nature, at length, triumphs over all the obstacles of this procedure,

procedure, which is honoured with the name of method; the head turns under the lever, the *occiput* goes under the *pubes*, and it clears the passage: which proves that it is small relatively to the *pelvis*, and that it enjoys as much mobility as in most of those women who are delivered without help.

1672. The *Roonhuisens* conducted themselves no otherwise than *M. Herbiniaux*, when the child's head was situated transversely: like him they insinuated the lever under the *symphysis* of the *pubes*, and applied it on one of the sides of the head*: if they did not direct its extremity on the *mastoid apophysis*, at least, they placed it very near it, since they were afraid of hurting the ear. The *Roonhuisens*, though more timid than *M. Herbiniaux*, had some successes, but successes for which I can give them no credit: like him, they met with cases where their principles would not apply, and against which their pretended method failed: but more modest than he, they confessed it, while

* See the extract from the dissertation of *Messrs. de Vischer* and *Van de Poll*, at the end of the translation of *Smellie*, page 18.

he passes them over in silence*; they then acted cautiously, and their lever only pressed downwards, while he does it with so much more force, considering the *mastoidé apophysis* as the most proper part to support violent efforts, that he presses downwards, and brings it forward at the same time.

1673. It is impossible to believe that *M. Herbiniaux* brings the child's head out, keeping it in the transverse position in which it is placed in his third operation, though he says that position does not accommodate itself so badly to the form of the inferior *strait*, and that he cannot see why we give ourselves the trouble to change it †: for he declares positively, that it comes as in the case of his first operation. Now if the *occiput*, placed on one side, comes again under the *pubes*, as in the latter case, should we not be founded in applying to the surgeon of *Brussels* the reproach which he has vented against me, of endangering the child's life, by turning the head in that manner with the

* I shall be silent concerning those cases of *M. Herbiniaux*, that I may not embroil those who have communicated them to me.

† *M. Herbiniaux*, pag. 378, à la fin du § 405.

forceps?

forceps*? And would he not merit that reproach better still on account of the position which is the subject of his second operation, in which the face is placed under the arch of the *pubes*; since the *occiput* then answers to one of the lateral parts of the *sacrum*, and cannot come under the notch formed by the branches of the *ossa pubis*, but by passing round at least a third of the internal circumference of the *pelvis*; by which the neck receives a much greater twist than in the preceding circumstance? I have prevented the imputation which might have been thrown out against *M. Herbiniaux* on this account, by demonstrating that the lever directed on his principles, far from causing the rotatory motion, can only tend to oppose it: if I have been deceived, he must at least allow that the twist of the neck, which is inseparable from that motion, is not dangerous, and cannot affect the child's life, since he has brought them living. The better to confirm him against the fear which he has of it, and which he endeavours to inspire into others by his clumsy calumnies against me, I shall refer him again to some of the principles which he admits, and which I hold to be good.

* *M. Herbiniaux*, page 378.

Does he not allow, in many parts of his work, that in the most common labour the head descends a little on one side; that is to say, one temple behind the *pubes*, and the other towards the *sacrum*; that the *occiput* afterwards comes under the notch which we call the arch of the *pubes*, and presents at the *vulva* that part commonly called the crown? Now for the *occiput* placed at first at the side, to come thus before, the head must necessarily suffer a rotatory motion, accompanied by a twist of the neck; whence it follows, that most children would perish in the passage, if that motion were as dangerous as he would willingly persuade himself; for those whose heads turn round in this manner are, perhaps, to those who do not turn at all, as a thousand or fifteen hundred to one.

1674. It is not only on account of the danger to which the rotation of the head, in the cavity of the *pelvis*, exposes the child's life, that *M. Herbiniaux* finds fault with the method I have prescribed for extracting it when it is situated transversely, but also because that position appears to him to be better than that which I bring it to. "I cannot see," says he, speaking of me, "why he wishes to turn the head in that manner, since he dares compress
" it

“ it sufficiently to turn it: it doubtless would
 “ not require more force to extract it in its first
 “ position; since the diameter from the face
 “ to the *occiput* being the greatest of the trans-
 “ verse diameters of the head, does not accom-
 “ modate itself so badly to that of the *strait* which
 “ goes from one *ileon* to the other *, a diameter
 “ which augments still more when the head is
 “ engaged in it †.” I will not prevent the
 reader from forming his own judgment on this
 point: I shall only ask *M. Herbiniaux*, why the
 head comes of itself to this position, which he
 sometimes regards as the most natural and best,
 and sometimes as disagreeable, notwithstanding
 the resistance which it suffers from the *pelvis*,
 and which he gives it with his lever. If it re-
 quired less force to extract it in the transverse
 position, for which he prescribes his third ope-
 ration, why did he not extract it so, and why
 did he suffer the *occiput* to come upward?
 More than five and twenty cases, which have
 happened to me, would refute the extravagant
 opinion of this surgeon; but I shall quote only
 one, and that I shall give in a note, that I

* Page 378, § 405.

† Page 250, § 275.

may not wander too much from my subject*.

1675. If it requires less force to extract the head in the transverse position when so placed, than to turn it in the *pelvis*, and bring the *occiput* under the arch of the *pubes*, why did *Boom*, the pupil of *de Bruyn*, who was himself a pupil of *Roonhuijsen*, suffer a woman to die in 1752, whom he could not deliver with the lever, though he used it nearly like *M. Herbiniaux*, or perhaps exactly in the same manner? (See par. 1672.) Why, in 1753, did the same accoucheur procure *M. Camper*, on whose authority I quote these facts, an opportunity of dissecting another whom he had abandoned,

* In a case of this kind, the forceps were applied twice without effect, before my face, and in presence of a physician, whose memory will long be respected by his brethren, and the friends of humanity (*M. Lorry*). Notwithstanding all the force the accoucheur could apply to extract the head, it did not descend a single line; that force, as incautiously applied as badly directed, only served to disengage the instrument suddenly as often as it was placed in the same manner. After these attempts, I conducted it, as I have directed for that transverse position of the head, in which the *occiput* answers to the left side of the *pelvis*; see par. 1770, and following: I easily brought the occipital extremity upward, and terminated the labour without any difficulty.

after

after having vainly endeavoured to deliver her? And how could *M. Camper*, before the face of that very practitioner, deliver the dead body of that unfortunate victim of prejudice, by means of *Smellie's* forceps, beginning by putting the child's face underneath *? Would not the reproach which that learned *Hollander*, a partisan of the lever, then cast on those who use it in all cases, be equally applicable to some accoucheurs who use it in the same manner at present? "They continued to work," says he, "with the lever, till the child's head, at length suffocated, was pushed out; or till both mother and child gave up the ghost †. "If the head be small, and the *pelvis* large," adds he, "it will pass in any position: but when it is well proportioned, it will not pass without great difficulty, if its great diameter be opposed to the small one of the *pelvis*." These truths are so well known, that they could not escape a man whose smallest title is that of a skilful accoucheur, and *M. Herbiniaux* is the only one who will venture to contest them. If he has never perceived that it re-

* Voyez la Dissert. de *M. Camper*, Mem. de l'Acad. Royale de Chir. tome v.

† Idem.

quires less force to turn the head in the cavity of the *pelvis*, than to extract it in the transverse position when so placed, it is because he has never tried to turn it in that case, and bring the *occiput* under the arch of the *pubes*: if he does not allow that it generally executes the pivot-like motion with little difficulty, it is because he has forgot that the little jerks, which he makes with his lever, to find the *mastoid apophysis*, in his first operation, and his trial of the attracting motion by means of the cord, to know whether the instrument has a firm hold, have been sufficient to turn away the *occiput* from under the arch of the *pubes*, and carry it towards one of the sides of the *pelvis*. Would more force have been necessary to bring it back again under the arch of the *pubes*? And has not Nature constantly brought it back again to that point, notwithstanding the presence of the lever, and the efforts of the person who handles it? If *M. Herbiniaux* has found few obstacles to extracting the head in the transverse position which is the subject of his third operation, it was because the lever was not necessary, and the circumstances which have favoured him were of that kind which always render our assistance unnecessary. Besides,

sides, in what part of the work of that accoucheur do we find any facts that prove he has once extracted a head in that transverse position? and does he not always refer to his general method, for the course which we must make it take in this latter period of labour?

1676. According to his theory on the locked head, and the cases which he adduces in support of that doctrine, we may reasonably object to him that he has used his lever only on moveable heads, and even of a moderate size relatively to the capacity of the *pelvis*. If the *Roonhuisens* have not applied it with an appearance of success but in similar circumstances, at least, they recommended it for those where the head was stopped and immoveable; and looked on that condition as necessary to their purpose, since they declare that the instrument holds badly when the head is moveable, that it is apt to slip off, and that, far from being useful, it is rather apt to do harm*.

1677. That mobility has not seemed to *M. Herbiniaux* to merit the same attention, and that it should so much obstruct the success of

* Voyez l'Extrait de la Dissertation de *M. M. de Vischer & Van de Poll*, pag: 9: *Smellie*, tome iv.

the application of his lever; for the head can never be so moveable in the cavity of the *pelvis*, as it always is above the entrance of that canal, when it cannot engage in it, but in that case, *M. Herbiniaux* only places the more confidence in his instrument. His method of using it is, he says, so much the more precious in that case, because the forceps have hitherto been found insufficient. He confesses however that his lever is not infallible, but that he has frequently succeeded with it; which never happened to him with the forceps, applied according to the method of *M. de Leurie*: not thinking it worth while, he adds, to pay any attention to mine, the ridiculousness of which he had demonstrated. I shall not follow him in the detail of all the cases of the latter species, for which he prescribes a new mode of operating; for a volume would scarcely suffice to unravel the chaos in which he loses himself*; and I have

* *M. Herbiniaux* renders himself unintelligible even to the very titles of the sections in which he treats of his new operations: his great art is to be understood by nobody but himself; perhaps he would be puzzled now to state the position of the head which makes the subject of his fourth section, of which this is the title: "Methods of using my lever, proper for rectifying the child's head, when at its entrance into the superior *strait*, it presents in a contrary direction."

already exceeded the limits which I had prescribed myself with respect to him. I shall only examine the procedure which he substitutes to the method of which he thinks he has demonstrated the ridiculousness. If the discussion which I shall indulge myself in, does not destroy the opinion of *M. Herbiniaux*, it may not be useless to his fellow-citizens, who blindly place their confidence in him. The method proscribed by this surgeon is that which I recommend for that position of the head, in which the *occiput* rests on the top of the *symphysis* of the *pubes*, and the forehead against the *sacro-vertebral* angle*.

1678. *M.*

* See *M. Herbiniaux*, page 331, to 357 inclusively: the first edition of my work, vol. ii. page 101, to 113 inclusively; and the eighth and ninth plates: the second edition, from par. 1790 to par. 1810, and the tenth and eleventh plates. The spirit of criticism which animates *M. Herbiniaux*, scrutinizes even the very plates: the smallest omissions which he thinks he finds in them, appears to him as so many snares which I lay for the credulity of my readers, and furnish him with so many occasions of indulging his natural inclination, and of breaking out into abuse against me; though those plates, which he has taken for a model in some cases, are more correct than his own. I must inform him that I did not think I ought to restrict the designer to give the form and dimensions of all the objects before him scrupulously, and with a mathe-

1678. *M. Herbiniaux* undertakes to demonstrate, first, that the position in which I represent the head at the superior *strait* cannot take place; next, that my manner of operating is dangerous; and, lastly, that it is impracticable. The reasons on which he grounds his first proposition, are the same which determined me to state that the position which is the subject of this discussion must be extremely rare: but the same experience, which has confirmed me in that opinion, has likewise convinced me that that position is not impossible. I have met with it three times, and in those three cases the head, scarcely engaged a third of its depth in the superior *strait*, was stopped and so fixed that a strong labour of from six and thirty to forty hours in one woman, and near twenty-four hours in another, could not move it, and push it a single line farther. If the head never presented at the *strait*, as I have expressed it in the

mathematical precision: which would have been more particularly useless with respect to the *pelvis*; because that exactitude could only regard that single one which he had for a model; the shades, which may be observed in a given number of *pelves*, being not less various than what may be found in the faces of the same number of women. My intention was only to demonstrate in general the relations of the head to the straits of that canal, and those of the instrument to both.

eleventh

eleventh plate, it could never engage in the direction in which I have found it; that is a fact which no one will venture to contest, except *M. Herbiniaux*, who seems to be ignorant of the form which the two *psoæ* muscles give to that *strait*, and not to have a more exact knowledge of the relation of that form, to that of the child's head.

1679. He next finds my method defective, because I run the risk of applying one blade of the forceps on the face, and the other on the *occiput*; as I reproach, he says, *M. de Leurie* with doing; if the face should slip to one of the sides of the projection of the *sacrum*; or if the first blade of the instrument, by pressing on the head when we introduce it, should make it take that direction. If *M. Herbiniaux* has no other fear, he may make himself easy; let him proceed methodically in introducing the blades of the forceps, and he will avoid the rock which he points out. The position in question is that in which I am the most certain of introducing the forceps, with the precision which I recommended. My method is also defective, he says, because I turn the child's face into the curve of the *sacrum*, after bringing down the head to the bottom of the *pelvis*;

and because it cannot be carried thither, according to *M. Herbiniaux*, without passing round a large third of the internal circumference of that cavity; and because that movement cannot be made, even by my confession, without giving the child's neck a dangerous and even a mortal twist. It is easy to demonstrate that this surgeon is not more skilful in geometry, than in anatomy and midwifery. Where is this large third of a circle which I make the child's face pass round; this movement which may give a dangerous and even a mortal twist to the neck? The face, placed at first over the *sacro-vertebral* angle, against which the forehead rests, in going towards one of the *iliac fossæ*, describes, at most, but a fourth of a circle, and even a sixth, if we limit ourselves to carrying it over the *sacro-iliac symphysis*, as I do when the superior *strait* is not very narrow*: which gives the neck but a very slight twist; since it cannot be greater than that fourth of a circle which the face describes, and which is generally limited to a sixth. This twist of the neck will not appear dangerous to any but *M. Herbiniaux*, who forgets that it takes place

* I suppose it to be then at least three inches and a quarter.
See par. 1790.

even in the adult, whose neck is much less supple than that of the *fetus*, as often as the face is turned towards one of the shoulders; and that it happens in himself, as well as in others, without his feeling any troublesome stretching in the muscles and ligaments of the part. By directing the face into the curve of the *sacrum* when the head arrives at the bottom of the *pelvis*, it does not describe a larger portion of a circle than it did in turning away from the *sacro-vertebral* angle, and does it in the contrary direction. Far then from giving the neck an additional twist, we efface that which we had given it in the first period. Though I recommend, in some cases, not to place the child's face underneath, on account of the great and dangerous twist which it would give to the neck, it is not in the case in question, as *M. Herbiniaux* clumsily insinuates; but when the face answers to the *symphysis* of the *pubes*, and sometimes when it is behind one of the *acetabula*. It is in those positions which are the subject of his second operation, and in which he is not afraid to turn it on one side, and then backward. Therefore he merits much more than I the reproach which he casts on me, on that account.

1680. *M. Herbiniaux* would have needlessly exposed himself to this discussion so little to his credit, if the method, of which he has so badly demonstrated the danger, were fictitious, if it were chimerical, as he says, if I had never executed it, either on the dead body, or on the living woman; in one word, if he could prove, as he flatters himself he can do, that it is impracticable. The grounds on which he judges it so, are particularly deduced from the dimensions of the forceps, charged with the child's head, compared with those of the superior *strait*. The blades of a pair of well made forceps, says he, do not leave a distance of more than four lines between their extremities, and the belly of the instrument is two inches eight lines*. A body of two inches diameter, placed between the extremities of those blades, continues he, will make the belly three inches ten lines; a body of two inches and an half, four inches two lines; and one of three inches, which is the measure of the thickness of a

* The arguments of *M. Herbiniaux* would doubtless have been still stronger, if he had discovered that the distance between the extremities of the blades of my forceps is not two lines: for the belly of the instrument must become still greater, on that account, by the interposition of the body he speaks of.

child's head at full time, below the *mastoide apophyses*, will carry it to four inches eight lines. Allowing this diameter of the belly of the ellipsis formed by the instrument charged with a head three inches thick below the *mastoide apophyses*, and three inches and an half from one *parietal protuberance* to the other, according to him my method must be evidently impracticable, even in the largest and best made women; because the little diameter of the superior *strait*, above which is the belly of the instrument, never exceeds four inches and an half, and because I suppose it, at most, from three inches and a quarter to three and an half, in those cases for which I recommend it. But how will it be, if the breadth or diameter of the belly of the forceps, applied methodically, and according to the principles of the art, instead of augmenting, as *M. Herbiniaux* asserts, and acquiring a breadth of four inches eight lines, by the interposition of a head three inches and an half thick, should really increase no more than the thickness of the blades of the instrument? if those blades, instead of being removed from the convexity of the sides of the head, to the distance of seven lines, as appears by the experiments of *M. Herbiniaux*,

biniaux, should embrace it closely, as may be observed in the second figure of the third plate of this very author: and which is absolutely the case? It follows, without doubt, and is absolutely certain, that my method would be practicable even in case the *pelvis* should have but three inches nine lines in the little diameter of its entrance; since the thickness of the blades of the forceps is only three lines, and that of the child's head three inches and an half. If now it be granted me, that the head is susceptible of reduction*, that the form of its sides and the concavity of the blades of the forceps are such, that the *parietal protuberances* let themselves into the openings of the latter so far as to appear on a level with the external surface of the instrument†; and if it be recollected at the same time, that we always direct the greatest diameter of the belly of the ellipsis formed by the latter charged with the head, nearly according to one of the oblique diameters of the superior *strait*, it must be admitted that my method, so well demonstrated to be im-

* *M. Herbiniaux* cannot deny that it is, otherwise, how could he make it clear a narrow *strait*, with his lever?

† See par. 1625 of this work.

practicable by *M. Herbiniaux*, is practicable not only in cases where the little diameter of that *strait* is three inches nine lines, but also when it is but three inches and an half, or even three and a quarter, and under.

1681. It is not only from the excess in the diameter of the belly of the ellipsis formed by the forceps charged with the child's head, over the little diameter of the superior *strait*, that *M. Herbiniaux* rejects my method, and regards it as impracticable; he grounds it likewise on this, that the direction of the canal of the *pelvis*, and the *vulva* itself, do not permit the handles of the instrument to be inclined sufficiently backward to give the head the position which appears to me necessary for its passage through the *strait*. That may be true, with respect to some distorted *pelves*, which are very rarely met with; because there might be at the same time an alteration in the form of both *straits*, and a change in the direction of the whole canal: but I never proposed it as an universal method, and applicable to all cases. What would *M. Herbiniaux*, armed with his lever, do in those excepted cases? Would he be able to insinuate it under the *pubes* and the *linea alba*, as he prescribes it in treating of his
sixth

sixth operation, much more impracticable than my method; since he must incline the extremity of his lever much farther downward and backward, to enable the other end to begin its action on the child's head, than I should do with the handles of the forceps?

1682. Because the forceps have been fruitlessly applied by *M. Herbiniaux*, in the case which is the subject of this long and last discussion on the lever, ought we to conclude with him, that it cannot be usefully employed by others? This failure of success much less denotes the imperfection of the instrument, than the incapacity of him who knew not how to apply it to more advantage. Although *M. de Leurie's* manner of acting, which he followed in the case in question, be not very methodical, yet it requires a certain degree of knowledge of the relation of the form of the instrument to that of the woman's *pelvis* and the child's head; and every article of *M. Herbiniaux's* work clearly proves that he has not the smallest tincture of that knowledge. Have I any more reason to suppose he possesses that which leads to the successful application of the forceps, according to my method? He asks for facts in support of the principles on which I establish

establish this method : but of what use would facts be, for him who is not disposed to admit them ? I would however relate some, if the limits of my work would permit it ; and among the most authentic which I have to produce, I should take a particular pleasure in stating one, on no other authority than that of a midwife and her husband, an invalid soldier of sixty years, who has employed some years of his retreat in studying our best authors, and who understands them better than my critic.

1683. Drawn by the force of truth which he dares not always reject, *M. Herbiniaux* is sometimes obliged to coincide with it in spite of himself : for after having endeavoured to prove, that the position of the head, for which I recommend the method which he looks on as impracticable, cannot take place, he finishes by admitting it, with this modification however, that at the same time that he supposes the face towards one of the lateral parts of the *sacro-vertebral* angle, he places the *occiput* towards the *linea alba*. What does he do in this case ? He first passes the whole hand into the *vagina*, to ascertain the position of the head,
and

and especially the side to which the face is turned; though it seems indifferent to him whether it be more or less towards the right side, or the left, provided it be not towards the *linea alba* where he must apply his spatula: a case which perhaps, says he, never happened*. When it is in a preternatural situation, and it is without doubt that which he in some measure rejects the possibility of, which he calls so, he brings it to a natural one with his fingers, before he transports the woman to her bed †. After that he places the woman in his elbow-chair ‡, and sits before her on a low one §. Being seated thus low, he introduces

* This case is however the subject of his 9th observation, as any one may see.

† In what attitude is she then during that examination? Is she standing or sitting?

‡ The elbow-chair belongs to *M. Herbiniaux*, and he has it carried about with him almost every where. Why this double transportation of the woman? why not have put her at once into the elbow-chair? Does *M. Herbiniaux* suppose that the child's head, when so moveable as he paints it, will continue in the natural position to which he has just reduced it, during these successive removals? A man must be very little versed in the science of midwifery to imagine it.

§ That chair must be very low, for his elbow-chair is but a foot and an half high.

his

his fingers far enough on the child's head, to fix it, and serve as a conductor for the lever*. He first uses the open blade of his instrument; because it is much less subject to slip at the side of the head†. He carries it from below upward, and from behind forward, under the *linea alba* and on the side of the head, till its curve embrace the convexity of the latter, and till he feel the extremity fixed towards the *mastoide apophysis*, or the side of the *occipital* protuberance. He then makes it act gently on its *fulcrum*‡, at the same time pulling the cord strongly towards the *anus* of the woman,

* Although he does not say that he carries the fingers under the *pubes*, we perceive that it must be so, since it is under the *linea alba* that he insinuates the lever, along the palm of the hand and those same fingers. It will be agreed too that his attitude opposite the woman sitting would not be convenient for any but himself; but he is extraordinary in every thing.

† The lever mounted with its open blade at one end, and its great curve at the other, must be at least fifteen inches long, since each of the parts which then compose it, is, at least, five inches.

‡ The lever introduced to that height in the part indicated, must have the whole length of the *symphyfis* of the *pubes* for a *fulcrum*: which at least must render its swinging motion very difficult.

but

but always during a pain : by this successive operation, says he *, the pains redouble in activity, and the head engages more and more †. Presently this first lever not being any longer of the same utility, he substitutes the blade with the small curve, in order to extract the head as in his first operation.—See *M. Herbiniaux*, 6th operation, page 409, and following.

1684. Those who will take the pains to compare this procedure with that which I have just rescued from the shackles of *M. Herbiniaux*, will find all the defects in it which that accoucheur reproaches the latter with, and will discover in it none of the other's advantages. The notes which I have already had occasion to make, will assist in shewing what degree of confidence ought to be placed in his method, and I should not give my opinion of it in any other manner, if I wrote only for masters of the art. The position of the head is equally favourable for the application of the forceps, whenever it presents its greatest diameter fore-

* Long enough, since it lasted half an hour in the woman who is the subject of the eighth observation of *M. Herbiniaux*.

† It is those pains which expel the head, and not the lever that extracts it, as I have so many times repeated.

most to the smallest of the superior *strait*, and cannot engage in it, whether the *occiput* answer to the *pubes* or the *sacrum*; and we are not less certain of placing them with all the precision we can desire, in one case than in the other. It is not so in the application of the lever which must go to the *mastoide apophysis*, or on the side of the *occipital protuberance*; since *M. Herbiniaux* is afraid to use it when the face is under the *linea alba*; a position which, says he, never happens, although it is the subject of his ninth observation. As the position which is favourable to the proper application of the forceps, is unfavourable for the passage of the head through the superior *strait*, it is with that instrument that we change it; and that is done without any trouble, and with as little danger to the child, as pain to the mother. A single finger introduced into the *vagina* is sufficient not only for the examination of the position of the head, and to enable us to distinguish it perfectly, but also most frequently to direct the blades of the instrument, though I would recommend several, to serve them for a guide. *M. Herbiniaux* introduces his whole hand to make this examination, and to change the position of the head when it does not ap-

pear to him to be favourable, either for the application of the lever, or for its descent; and this fatiguing and painful preliminary is executed before the woman is in a proper attitude for delivery, even before the time when she is to be delivered, since she is afterwards carried to her bed, from whence she is taken, in fact, almost immediately, to be placed on the accoucheur's elbow-chair, and again subjected to the pain inseparable from the introduction of the hand and the instrument. I give the woman a position as commodious for herself, as advantageous for the operation, and easy for the operator: for I place her on a high bed, in such a manner that the breech may extend a little beyond its extremity. *M. Herbiniaux*, on the contrary, makes her sit in an elbow-chair, whose seat is only a foot and an half high, and seats himself on a chair much lower, to manœuvre with an instrument, at least, fifteen inches long, the extremity of which, as well as the hand perhaps which directs it, must be within three inches of the floor when he begins to introduce it. The blades of the forceps easily penetrate to the requisite height on the sides of the head, because I introduce them towards the sides of the *pelvis*; but the lever,

lever, sliding along the palm of the hand and the fingers which serve it as conductors, cannot, without difficulty, ascend behind the *pubes* to one of the temporal regions, and under the *linea alba*, whither *M. Herbiniaux* says he brings that region. We are not afraid that the friction, always slight, which the first blade of the forceps suffers in ascending along the side of the head, should displace it, and give it another position, either by making it recede from the superior *strait*, or by forcing it over one of the *iliac fossæ*; but we clearly conceive that the four fingers of *M. Herbiniaux* cannot penetrate between that and the *pubes* of the woman, without displacing it, and making the application of the lever more uncertain: for he cannot fix it by one of his flat surfaces against the projection of the *sacrum*, as he asserts, and represents in the third figure of his third plate. We really extract it, and without any assistance from the expulsive powers of the woman; whereas *M. Herbiniaux* founds all his hopes on those same powers, which cannot always be revived to the degree he affirms, and without them the lever would never have had any success in his hands. Though I give a slight twist to the child's neck, by turning the

forehead, or the *occiput*, from over the *sacro-vertebral* angle, I efface that twist by turning it back again into the curve of the *sacrum*, or by bringing it under the *pubes*, as soon as the head has cleared the superior *strait*, according to the position which existed above that *strait*. *M. Herbiniaux* does not conduct himself in the same manner, since in both these cases he seems to bring the *occiput* towards the notch formed by the branches of the *ossa pubis*. Though he makes the face describe but a very small portion of a circle, and gives but a very slight twist to the neck, in that case where the forehead answered primarily to one of the lateral parts of the projection of the *sacrum*, he makes it describe one equivalent to half the internal circumference of the *pelvis*, and gives an equal twist to the neck, when it is situated under the *linea alba*; as in the case which is the subject of his ninth observation. Lastly, a few minutes suffice to execute my method, when the *pelvis* is not very defective; while the procedure of *M. Herbiniaux* lasted half an hour in the woman who is the subject of his eighth observation.

1685. This parallel only regards the case where we suppose the small diameter of the superior

superior *strait* at least, from three inches and a quarter to three inches and an half: it was larger in the woman who is the subject of his eighth observation. Let us examine which method would be most advantageous, and which instrument would be preferable in cases where that *strait* is narrower. Admit only that the thickness of the head exceeds the little diameter of the superior *strait*, by three lines. To bring it through the *strait*, we must necessarily reduce it the quantity of that excess, since without that reduction it cannot descend. We know how the forceps procure that reduction; its two blades being placed on the sides of the head, and opposite to each other, confine their action to compressing it in that direction: but which way can the lever do it? Applied only on one of the sides of the head, if the other side of it be not strongly pressed against the internal surface of the *pelvis*, it cannot be any way compressed, or diminished in bulk; the action of the instrument will only displace it, and force it towards the part where there is least resistance. *M. Herbiniaux* says positively that he fixes the head on one of its flat sides, by means of his fingers which serve as conductors to the open branch of his lever;

lever; though he does not add that it is against the projection formed by the last *lumbar vertebra* and the base of the *sacrum*, we easily guess it. But besides that one of the flat surfaces of the head cannot then touch the projection in question, *M. Herbiniaux* withdraws the fingers which serve to fix it, and at the same time to direct the lever, before the latter can take their place: thus the head is left without support, at least, in the last period of the introduction of the lever, consequently moveable as before, and subject to take a different position from that to which it had been at first reduced, according to the direction of the friction and pressure which the blade exerts on one of its sides, in ascending to the place of its destination. If we attend to the inclined direction of the superior *strait*, to its figure, to the rotundity of the child's head on all sides, and to the great space above the *strait*, we must be struck with these important truths; and be convinced that the temporal region, the only part of the surface of the child's head which is flat enough to accommodate itself a little to the *sacro-vertebral* angle, cannot lie against it when the *vertex* presents transversely over the *strait*, especially if it be a little narrow; although

M. Herbiniaux has expressed it so, in the third figure of his third plate; and that it is then much above the angle in question. If the temple corresponded to the *sacro-vertebral* angle, the perpendicular diameter of the head would fall nearly on the middle of the *symphysis* of the *pubes*, and would cross the axis of the superior *strait*, according to which it must descend; which would be one of the greatest inconveniences attending the procedure of this surgeon. The lever placed according to his principles, and put in action, can only remove the head along one of the inclined planes presented to it on all sides by that large space formed by the *great pelvis*; and can never make it pass from that larger part, into the *strait* which is narrower, nor consequently bring it into the cavity of the *little pelvis*. To make it descend into the latter, which is itself larger than the *strait*, the transverse diameter of the head, taken from one *parietal protuberance* to the other, must be engaged between the two points which oppose its progression; or else, which is the same thing, one of the *parietal protuberances* must be below the *sacro-vertebral* angle, as we observe it in the third figure of the third plate of *M. Herbiniaux*. It is in vain that this

author

author quotes facts, and especially that of his ninth observation; he will only subjugate ignorance, and will never be able to persuade people even moderately skilled, that he could have obtained the success from his lever which he attributes to it, if the *pelvis* had had but two inches six or nine lines in the small diameter, and if the child's head had not been engaged as far as represented in the figure I have just mentioned, in which we may observe that one of the *parietal protuberances* is far below the *sacro-vertebral angle*. But granting him that in similar cases he might accelerate the descent of the head into the cavity of the *pelvis*, I cannot allow that he extracts it.

1686. Having only spoken in this long article on the lever, of the use made of it by some foreign surgeons, it might be supposed that it is entirely unknown to the *French*, or that they have rejected it by common consent. But if there be no author found among us who has given it a preference to the forceps, no skilful accoucheur who has used it so frequently as those of other nations, yet we do not give up that point to the *Dutch*: for a surgeon of *Lisle* in Flanders flattered himself, fifteen years ago, that he had delivered from a thousand to

twelve hundred women with a sort of spatula, in the space of twenty years; and another of *Douay*, now more than eighty years old, *M. Rigodeaux*, has used it ever since the year 1739*. It is not against the utility of the lever, but against the abuse of it, that I have entered the lists: my intention, in all the discussions I have entered into, has not been to proscribe it, but to shew that it had been used without principles, and almost always in circumstances where we might do without it, where the finger methodically directed may suffice, or where the powers of Nature had no need of assistance. Its success has been so multiplied only because those fortunate circumstances rendered it unnecessary; and because the time of its application was generally that when the labour was going to terminate, its presence not being able to obstruct it. The forceps would have had much more right to the great reputation which some have endeavoured to give to the lever, if the abuse of them had been carried as far as that of the latter.

* Voyez Mémoire de l'Académie Royale de Chirurgie, tome v.

ERRATA in Vol. II.

- | Par. | line. | |
|-------|-------|---|
| 926. | 4. | <i>for</i> , actions, <i>read</i> , action. |
| 1112. | 14. | of the note, <i>for</i> , light, <i>read</i> , tight. |
| 1429. | 4. | <i>for</i> , hand, <i>read</i> , head. |
| 1444. | 9. | place a comma after lies. |
| 1524. | 4. | <i>for</i> , the, <i>read</i> , this. |
| 1611. | 13. | <i>for</i> , recommended, <i>read</i> , recommend. |
| 1677. | 7. | of the second note, <i>for</i> , appears, <i>read</i> , appear. |
| 1679. | 16. | <i>for</i> , recommended, <i>read</i> , recommend. |

